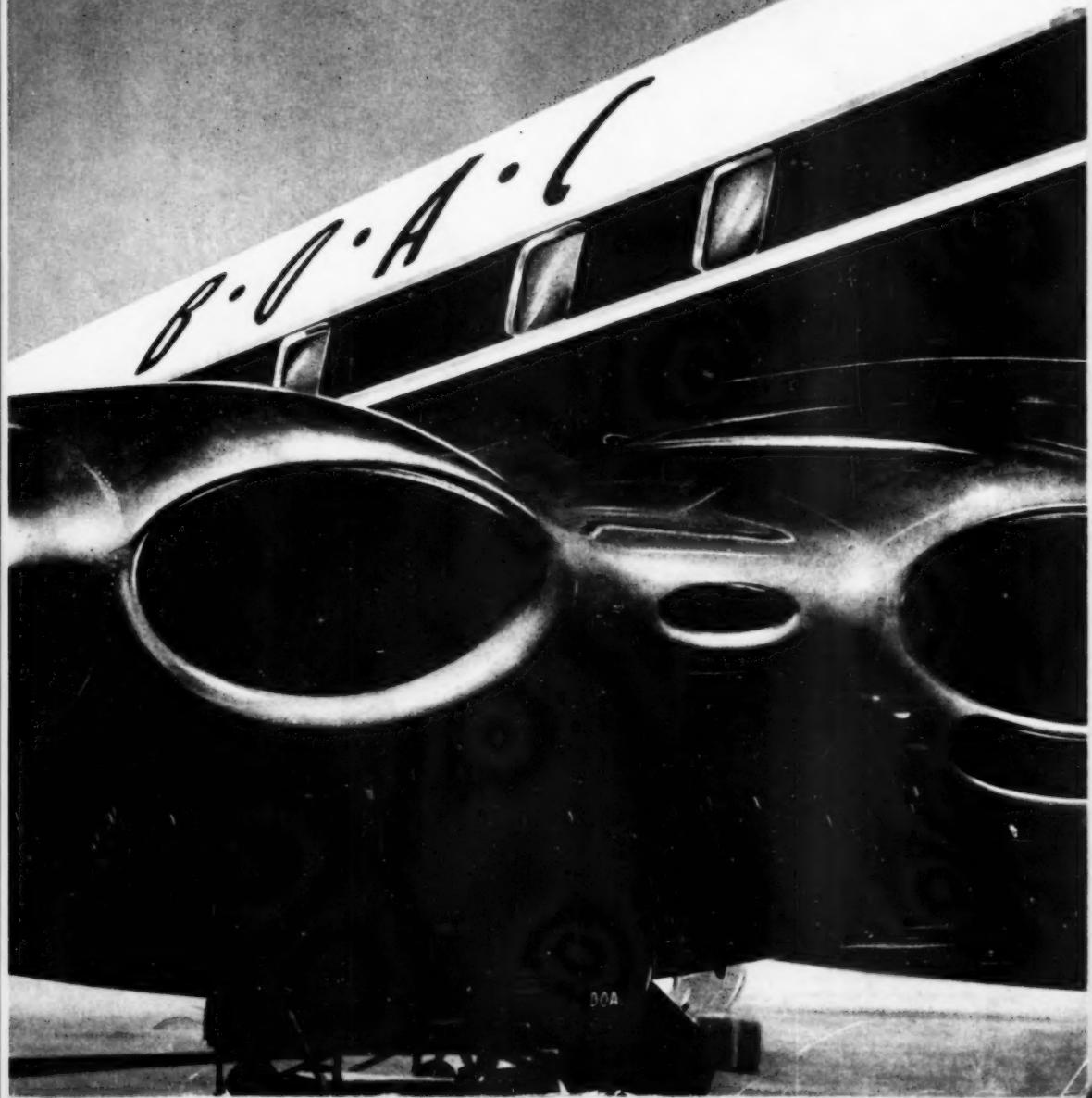


MARCH 1952 2/6

BUSINESS

The Journal of Management in Industry





REMINGTON

Foremost
ACCOUNTING MACHINES

... Foremost in Adaptability, Quality of Work and Ease of Operation

It is important to view the problem as a whole. Maximum advantages can only be obtained if a survey is made of existing procedures and a clear conception formed of the information which is necessary.

REMINGTON RAND maintain a staff of Machine Accounting Representatives who are fully qualified to offer competent technical advice and draw up mechanical schemes to meet particular requirements. There is no need today to make drastic

system alterations or to adopt rigid or standard schemes which may be an obstacle to future development and progress.

With the experience available from their various divisions REMINGTON RAND offer, in addition, expert and up-to-date advice in the filing, housing and printing requirements of a modern installation. No other firm provides the same complete service. Write or phone:—

Remington Rand Ltd

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Tel : Chancery 8888. Branches throughout the British Isles.

CONFIDENTIAL CONSULTATIONS AND SURVEYS WITHOUT OBLIGATION



"There's a whole morning's mail answered!"

Perfectly recorded by the Dictaphone Time-Master on a single Dictabelt

On one little Dictabelt, you can often dictate the replies to a whole morning's mail, perfectly recorded, ready for your secretary to transcribe at the most convenient moment.

For the amazing little Dictabelts give *more* recording as well as *better* recording. In fact it was the invention of the Dictabelt that led to the development of the Time-Master—a smaller, simpler, more efficient dictating machine than was ever thought possible!

SIMPLER, CLEARER DICTATION

Dictation with a Time-Master is remarkably simple. Controls are reduced to a minimum. The tap of a finger is all you need to do to put a new Dictabelt in

or get a completed Dictabelt out; flick a switch and you're all set for 15 minutes of crystal-clear recording. And Time-Master recording is *clear*—the sensitive microphone picks up every word, even a whisper—making transcription much easier for your secretary.

Write for TIME-MASTER literature to Dictaphone Co. Ltd., Dept. Q, 107 Kingsway, London, W.C.2.

DICTAPHONE
GREATEST NAME IN DICTATION

Dictaphone and Dictabelt are registered Trade Marks.

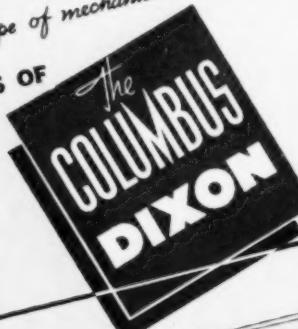
MADE IN GREAT BRITAIN Branch Offices BELFAST BIRMINGHAM BRISTOL CORK DUBLIN GLASGOW LEEDS LIVERPOOL MANCHESTER NEWCASTLE

MARCH, 1952

POSITIVELY QUICKER, BETTER, Cheaper Floor Maintenance

For every type of mechanical cleaning - on any type of floor

PRODUCTS OF



ORGANISATION

This Booklet tells
you HOW
SEND FOR IT NOW



THE REGENT FLOOR DRIER

Ensures accident-free floor surfaces at one-seventh cost.

COLUMBUS *The Mechanical Charwoman*

Introduces an entirely new technique to floor maintenance that saves time, money, labour and materials.



Dixon

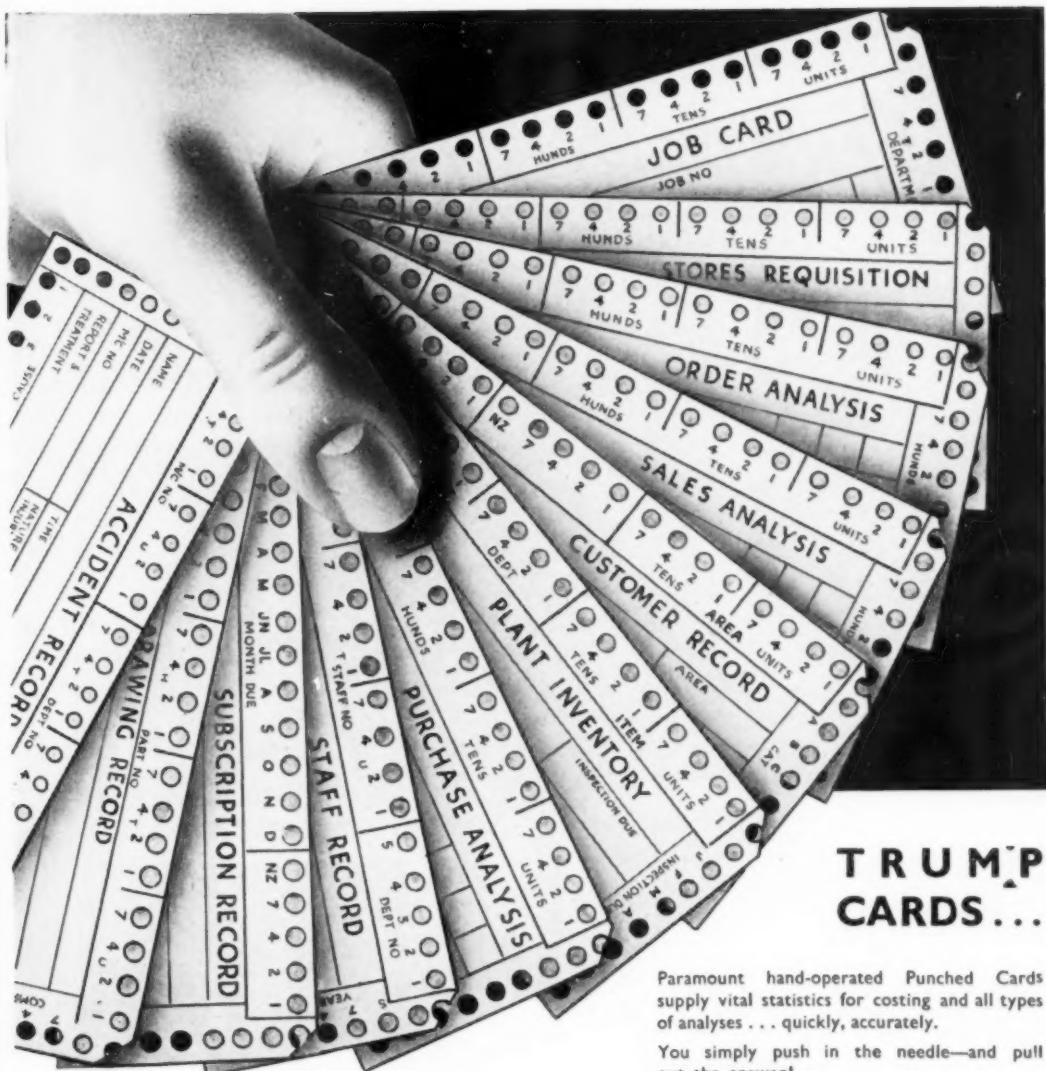
FLOOR SCRUBBER AND POLISHER

It pays to mechanize your floor cleaning. Leading industrial firms using our equipment are proving this daily. Cleaning and maintenance costs are reduced by 80% and they now possess better looking floors, more hygienic conditions and achieve greater production.



THE COLUMBUS-DIXON ORGANIZATION, Industrial/B Division, WEMBLEY, MIDDLESEX.

An Organization specialising in Power Floor Cleaning Equipment for every purpose in Industry.



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Paramount hand-operated Punched Cards supply vital statistics for costing and all types of analyses . . . quickly, accurately.

You simply push in the needle—and pull out the answer!

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Tickets
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Tags, Etc.



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**END—WRITING BY HAND—
RUBBER STAMPING—PRINTING DELAYS**

Consider the large savings that can be effected by 'On the Spot' Overprinting by using the Dapag Machine. Any boy or girl in your factory can overprint all the details on to any quantity of your labels, tickets, tags, etc., within a matter of seconds. Thanks to the Dapag Quick Setting Type Method, the smallest quantities are produced as economically as the largest. Send for further details today.

Sales and Service available in all areas of the British Isles.

Dapag

OVERPRINTING MACHINES

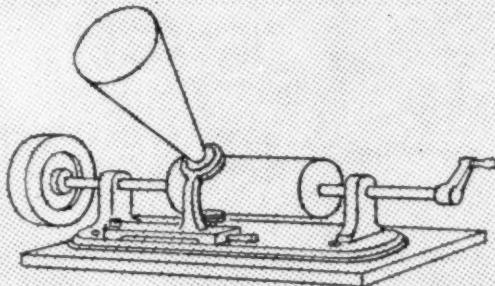
DAPAG (1943) LTD., 23 HOLBORN VIADUCT, LONDON, E.C.I.
Telephone : CITY 5373/4.



Photo by permission of : East Africa Furniture Ltd.

in 1877

THOMAS ALVA EDISON
amazed the world by
recording the human voice



TODAY there is no quicker,
more economical method of
handling Memos - Reports -
Correspondence - than by

Ediphone

• EDISON offers

ACOUSTIC or ELECTRONIC—CYLINDER or DISC
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to suit your individual needs

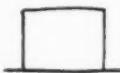
THOMAS A. EDISON LTD., Victoria House, Southampton Row, London, W.C.1. Hol: 9988
Branches in all Principal Cities

Your product may be —

Small



or large



or light



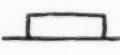
or heavy



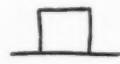
triangular



rectangular



Square



or rhomboid



- NONCURLING GUMMED PAPERS for labelling every kind of product.
- "GUMSTRIP" SEALING TAPES & "GUMSTRIP" ^{Regd.} SEALING MACHINES for sealing all parcels, packets and cartons.
- "SAMSON" ^{Regd.} ADHESIVES for every trade.
- SELF-ADHESIVE SEALING TAPES for security protection and airtight sealing
- PRESSURE SENSITIVE LABELS, for branding, coding, pricing, etc.
- COUNTER ROLL HOLDER for packing various sized parcels, available in seven widths.
- WATERPROOF MATERIAL for home and export packing.
- THE LIGHTNING ^{Regd.} LABELLER moistens gummed labels in a second. Made in 3in., 5in., and 9in. widths.

— but you can be sure it is safely packed if

you use  **BUTTERFLY BRAND PRODUCTS**

Regd.

Made by **SAMUEL JONES & CO., LTD.**
The House with the Packaging Service

NEW BRIDGE ST. LONDON, E.C.4. • GRAMS: NONCURLING LUD LONDON • TEL: CENTRAL 6500

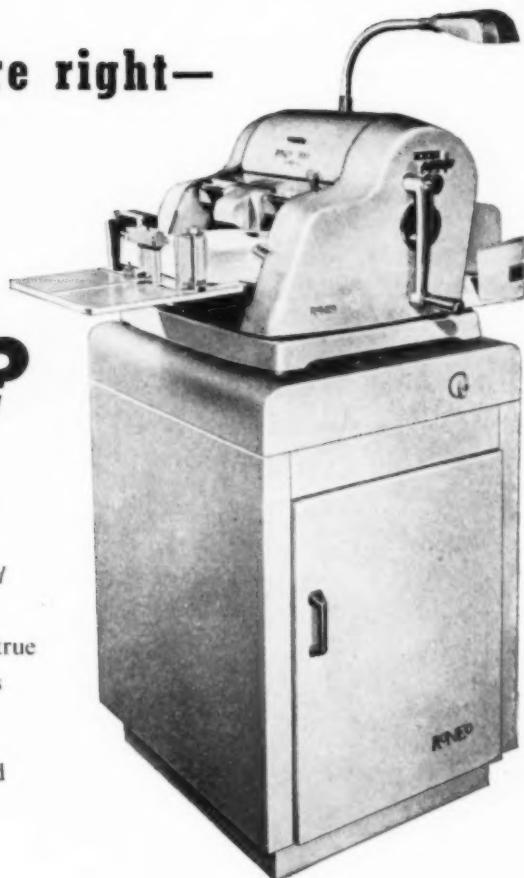
You may think you are right— *but* *have you proved it?*

If your business uses duplicating, you are probably convinced that you know which duplicator will give you the best service—but have you *proved* that your conviction is right?

Roneo believe that the only way to arrive at a true answer is to have a comparative test of all duplicators—including, of course, Roneo '500'.

We know that a side by side test will prove beyond doubt the great advantages of Roneo '500'.

- Considerable saving in running costs.
- Really automatic inking, giving continuously even work without stopping to re-ink.
- Interleaving, with blotting or other paper to prevent smudging, is unnecessary.
- No proofing. The very first copy is usable.
- 16,000 copies from a lb. of ink.
- Quick clean colour change in 25 seconds.
- Better standard of work with greater speed.



Write for booklet "Let's take a back seat", which gives users' reports on Roneo '500' that may help you to economise.



RONEO "500"
SERIES II

TWO MODELS: TOOLSCAP AND THE WIDE POLICY (PRINTS ON PAPER 18" X 14")

RONEO LTD., 17, SOUTHAMPTON ROW, LONDON, W.C.I. TEL: HOLBORN 7622. Branches throughout the country.

MARCH, 1952

TRW 114
7



Not too thick . . .

Not too thin . . .

85% of the light from a fluorescent lamp is provided by the coating of powder on the inside of the tube, and to get the highest efficiency and lumen maintenance, a critical amount of fluorescent powder is required on the tube. Too little powder will leave clear spaces between the particles and the ultra-violet radiation from the discharge will not be used efficiently; too thick a coating will absorb some of the light generated.

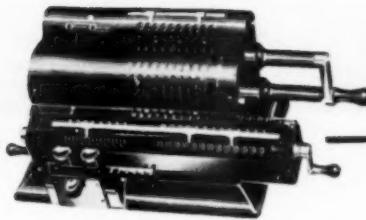
The viscosity of the powder suspension is the main factor affecting this powder weight and checks on coated tubes are taken throughout manufacture to avoid any drift from the desired standard. Quality control ensures uniform excellence.

The illustration shows a viscosity test on fluorescent powder suspension, using a "Ford cup" and stop watch.

METROVICK LAMPS

Quality control - throughout

METROPOLITAN-VICKERS ELECTRICAL CO. LTD., ST. PAUL'S CORNER, 1-3 ST. PAUL'S CHURCHYARD, LONDON E.C.4
Member of the A.E.I. group of companies.



Throughout the world ...

The ORIGINAL-ODHNER range of Calculators represents the last word in efficiency aids.

These inexpensive machines carry no costly "gadgets" or "extras"—devices that would increase the cost and complicate the construction have been eliminated.

The ORIGINAL-ODHNER is "streamlined" down to main essentials—the result is that each Model is easy to handle, needs no trained operator, and yet is so efficient and inexpensive that if one is used by a junior clerk for ten minutes a day it will pay for itself within a year.

Well-known throughout the world, the Swedish ORIGINAL-ODHNER Calculating Machines are once again available in this country. Each machine carries a twelve months' guarantee by the importers Gilbert Wood (A/M), Ltd., who have handled them for over thirty years.

FOR
IMMEDIATE
DELIVERY
RANGE
OF SIX
MODELS
AVAILABLE

FROM
£35
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"THE MACHINE

ORIGINAL O DHNER

TO COUNT ON"

Sole Agents for Great Britain :

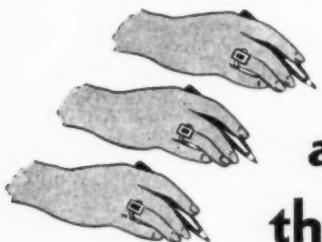
GILBERT WOOD (Arithmetical Machines) LTD.
73 - 75 - 77 NORWOOD ROAD, LONDON, S.E.24.

Northern Office : 33, Brown Street, Manchester, 2.

Telephone TULSE HILL 7211

Telephone BLA 1902.

MARCH, 1952



Would she smile if asked to do 4 times the amount of work?

Any girl would look amazed at such a request . . . but not if the new Kalamazoo "Copywriter" method had been previously explained to her, for then she could smile, knowing that 4 times the work would not mean any harder effort on her part . . . in fact the tedious duplication of her work would be eliminated, and the writing of the Receipt, Cash Book posting, Ledger entry and current Statement carried out at one operation. That is the simple story of the "smile."

To Kalamazoo Ltd., Birmingham 33.
Please send me full information about the new Kalamazoo "Copy-Writer" Cash Receipts Method
without obligation on my part.

Name

Address

23A

Kalamazoo
Copy-Writer
CASH RECEIPTS METHOD

LET'S BE PRACTICAL — No. 2

What is a Powers-Samas 'A.K.P.'?



The letters "A.K.P." are the initials by which the Powers-Samas Automatic Key Punch is familiarly known to the thousands of users of punched card accounting equipment.

The Automatic Key Punch is the modern, efficient machine on which Powers-Samas cards are punched by juniors, who quickly learn to operate it with speed and precision. Each hole, or combination of holes in a card represents an accounting figure or fact; and each completed and mechanically verified punched card is an ineffaceable basic record which provides the means of performing all ensuing accounting operations with machine speed and accuracy.

Punching the cards is the only manual operation in the Powers-Samas system; high speed machines do the work of extracting, classifying, compiling and presenting the information, in words and figures, in the form of completed accounting and costing records.



POWERS-SAMAS

POWERS-SAMAS ACCOUNTING MACHINES (SALES) LIMITED
POWERS-SAMAS HOUSE • HOLBORN BARS • LONDON • E.C.I

Telephone No. HOLborn 8711

Look! These are the kind of love letters he loves and I hate his horrid old sales graphs



The "love letters" are replies to circulars; and the things you see are extracts from these replies.

Do the firms whom you circularise write love letters to you? Do replies from the "lovers" pour into your office to the tune of 30% response, and 48% response?

They can be made to do so—through the Senog system. Through Senogism you can put power, and persuasion (and profits) into your direct-mail advertising.

The Senog system is fully explained, and "proved" in the 2nd edition of *Selling by Letter*.

In this new book, for your inspection, and guidance, there are printed 43 letters—43 enquiry-creators, and order-winners, picked from 14 direct-mail campaigns.

Several of the 43 "stars" are analysed; and the activator—that mysterious something, that gives to a letter, its eye-opening and purse-opening power—this magic is identified and isolated, and made available, for use by you, in the letters that you send out.

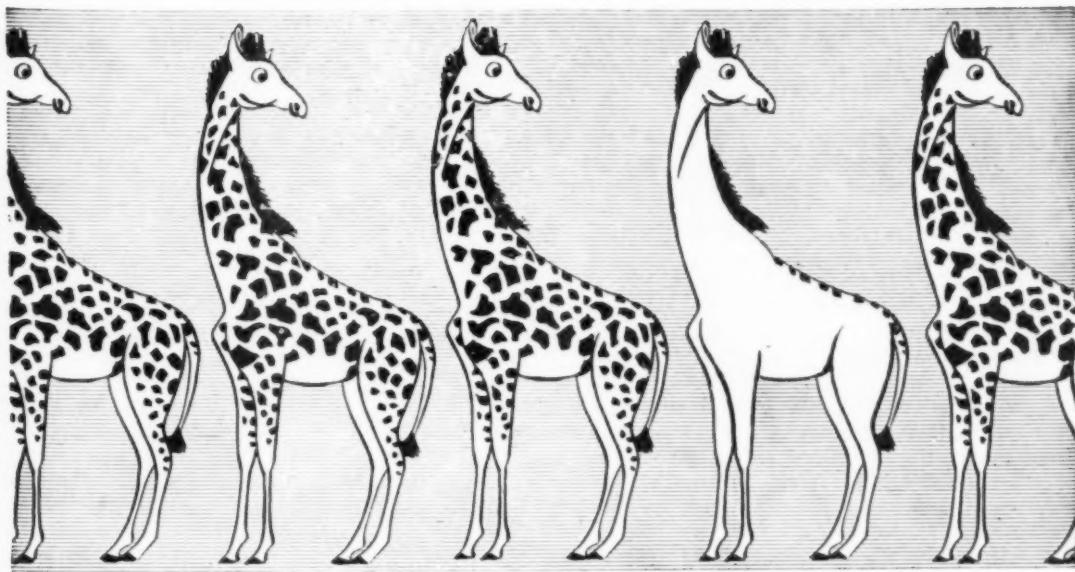
But in this small space we cannot tell you all about this new book. We have done so in a prospectus. And the purpose of this advertisement is to persuade you to write for that prospectus. It's free.

So dictate a note now to: G. J. Jones (Senogism) Ltd., 302d, Park Road, London, N.8. Simply say "Without obligation, please send to me the prospectus of 2nd edition of *Selling by Letter*." Dictate note now, and by return-of-post, you will be treated to a very persuasive piece of propaganda. But please send letter off immediately.

★ More of these astonishing replies—all in response to circular letters—are published in *Selling by Letter*. Also published (by permission) are the names of the business chiefs responsible for the replies.



This is a "sieving" advertisement of the Senog system. From the readers of this magazine, it should pull 210 replies. And, because prospectus also, is good, these 210 should yield 125 sales.



...but **EVERY** copy's perfect on the



‘MASTER’ DUPLICATOR

BLOCK & ANDERSON LTD., 58-60 KENSINGTON CHURCH ST., LONDON, W.8 WESTERN 2531



TAYLORS for all makes of TYPEWRITERS

★ Adding Machines, Calculators and other Business Appliances BOUGHT,
EXCHANGED, HIRED AND REPAIRED

Save Time—HIRE an Adder for Stocktaking

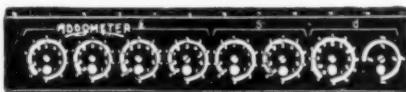
ADDOGRAPH the simplest portable adding and listing machine—delightful to use, eight col. to add from $\frac{1}{2}$ d. to £9,999 19s. 11 $\frac{1}{2}$ d. Nine col. to add from $\frac{1}{2}$ d. to £99,999 19s. 11 $\frac{1}{2}$ d. Hand and electric models with or without subtraction and wide paper carriages. No modern office can afford to be without one.



NO MORE ERRORS—IF YOU USE THE GUARANTEED ADDOMETER



THE TAPPIT ALL-RUBBER
[DAMPER]. Ever Ready and
Hygienic. A squeeze controls
feed of moisture. 2/- post free.



Rapid Automatic Addition and Subtraction. Rests flat on the books. For Decimal or Ordinary Figures and Feet and Inches etc. FOR POCKET OR DESK. So simple anyone can use it. In plush-lined duocoid case.
Size: 11 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ " x $\frac{1}{2}$ ".

When ordering state for what purpose required.

All models price Six guineas



ROTARY CALCULATORS ALL
MAKES. For all calculations. Multiply,
divide, add and subtract in 1/10th
time taken to do so mentally.

★ WANTED URGENTLY

HIGHEST PRICES PAID for all Makes of Modern Office Machinery :
Adders, Calculators, Addressers, Typewriters and Steel Office
Furniture

★ IN STOCK

A few Visible Index Systems, Kardex, etc., for sale. Desks, Chairs
and Tables.

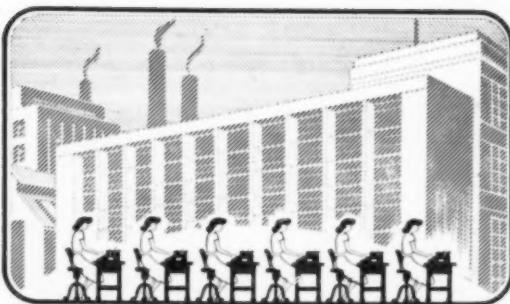
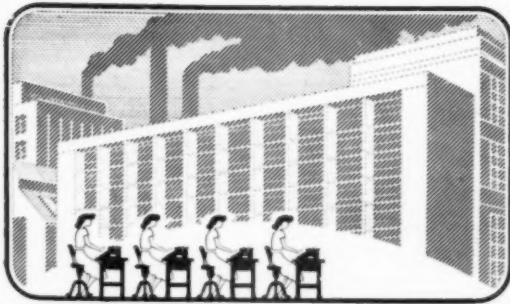


ELIMINATE LOSS AND FRAUD BY
USING A "SAFEGUARD," THE BEST
CHEQUE PROTECTOR. Used by
leading banks and firms. Do you real-
ise that an altered cheque is your own
liability? Price £18 18s. All makes of
Cheque Writers at bargain Prices.

TAYLORS TYPEWRITER MARKET

Write, Call or 'Phone HOLborn 3793

74 CHANCERY LANE (Holborn End) LONDON W.C.2 and at Maidenhead



FOUR TYPISTS **REPLACE SIX!**

AND —
greater accuracy
is assured!

by eliminating all unproductive operations—interleaving and extracting loose carbon sheets, inserting and aligning separate stationery forms PRIMUS saves one hour in every three on invoicing, works orders, goods received notes, purchase orders and other tasks of a repetitive nature.

PRIMUS forms, used in conjunction with the attachment which will fit any make of typewriter, are fed smoothly into the machine so that the typist is engaged all the time on productive work.

PRIMUS
Continuous Stationery

THE "PRIMUS" STANDARD REGISTER

For HAND-WRITTEN RECORDS, the Primus Register used in conjunction with Continuous Stationery ensures the same speedy, smooth operation, while a copy automatically locked in the machine provides your auditor with a check on each transaction.



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Tel: HOP 0204-54

SimpoleS
LTD

Desk Makers since 1843.

Sizes : 4ft. 6in. x 3ft.
5ft. 0ins. x 3ft.
5ft. x 3ft. 6in.



TOP LINED HIDE
LOCKS TO DRAWERS

THE YORK

LET US QUOTE YOU FOR YOUR NEXT DESK.

HEAD OFFICE AND SHOWROOMS :

BONDING HOUSE · BLACKFRIARS STREET · MANCHESTER, 3.
And at 37, KINGSWAY
STOKE-ON-TRENT

Factory: CANNEL STREET,
MANCHESTER, 4.



Fine Cutting Edges
& Chased Metal Goods

travel safely when protected by



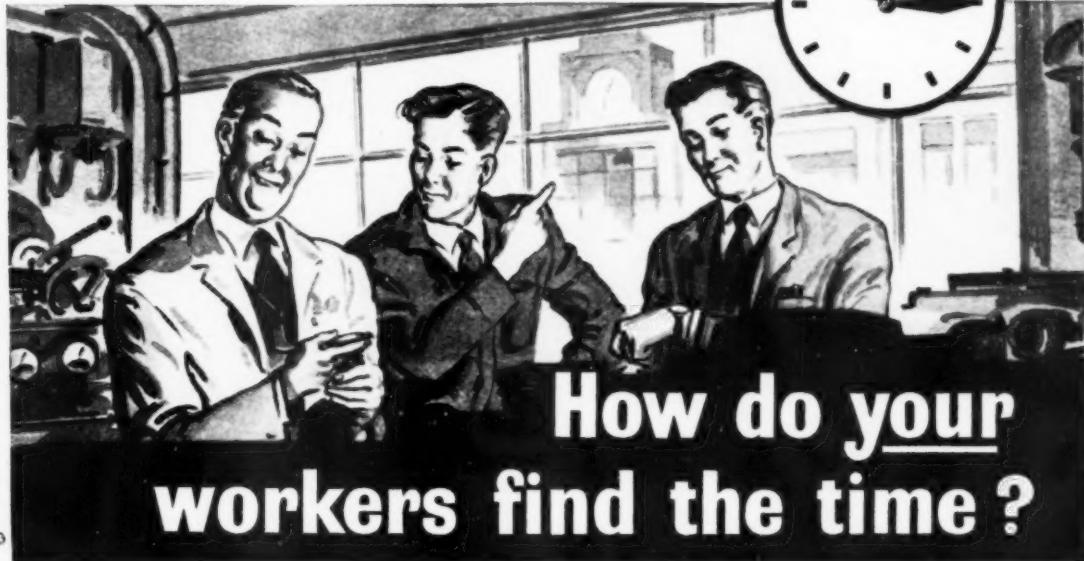
Transotape protects all surfaces from corrosion, abrasion and scratching. It protects cutting edges from blunting. Transotape seals safely. Use it PRINTED to identify, name, instruct and describe. All good merchandise is better Transotaped.

Sample and literature gladly

GOSHERON for TAPES

JOHN GOSHERON & CO LTD · GAYFORD ROAD · LONDON W12

WHEN IT'S A QUESTION OF TIME . . .



**How do your
workers find the time?**

Do your employees confer anxiously as break and finishing times approach, taking time off to find out the time?

Time searching costs industry far more than it should, especially as workers are apt to believe the fastest clock when it is a question of finishing the day's work.

T.R. Time Control puts an end to this and many other kinds of time loss in industry. The showing, sounding and recording of the correct time all the time is only a small part of what T.R. Time Control can do to make the time you pay for more productive.

Time Recorders, Internal Telephones, Internal Broadcasting, installed and maintained under guarantee by Telephone Rentals Ltd. — that's T.R. Service.

Spend a profitable moment now to write for full particulars.



SERVICE
speeds production

TIME CONTROL for making
man-hours more productive.

INTERNAL TELEPHONES
for speedy speech contact.

INTERNAL BROADCASTING
for staff location, time signals,
works relations, announcements
and music.

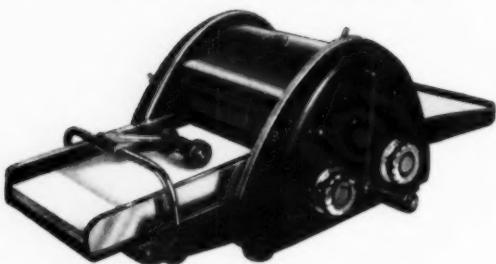
WRITE TO INF. BD KENT HOUSE, RUTLAND GARDENS, LONDON, S.W.7, OR YOUR NEAREST BRANCH —
34 THROUGHOUT THE UNITED KINGDOM. ALSO JOHANNESBURG, CAPE TOWN, PARIS AND BRUSSELS

H-F499



THE PELICAN

The Reproducer with Diffusion Damping



SIX MILLION DROPS!

Pelican diffusion damping employs six million microscopically small drops, which are applied with mathematical precision to the paper used. The volume of the drops can be varied according to the size of paper and the number of copies required—a factor which contributes to the high operating efficiency of the Pelican machine.

Moreover, Diffusion damping does not restrict the paper to be used to the hardsized or super-calendered type since all types and surfaces of paper can be used with equally satisfactory results.

THERE'S ALWAYS ROOM FOR A PELICAN!

- For smooth surfaced paper the supply of spirit is more restricted. A movement of the regulating knob and the correct supply of fluid is automatically adjusted.
- Diffusion damping ensures that too much dye is not taken from the original, thus reducing wear. Even with highly absorbent paper one original is sufficient for numerous copies.
- The automatic paper feed greatly assists the operator. Any size of paper from Foolscape to postcard size is firmly gripped and evenly fed.
- The automatic locking device safeguards the original whilst it is in the machine. By automatically operating when the supply of paper is interrupted, it prevents the pressure roller from damaging the original.
- When small forms or short texts are used the paper can be limited to the length of the text or form, thus conserving spirit.
- The spirit cannot flow after printing, as damping automatically ceases when the cylinder stops turning.

SOLE CONCESSIONAIRES FOR THE BRITISH ISLES AND
THE BRITISH COMMONWEALTH

MAXLOVE "CONTINUOUS" LIMITED

MANUFACTURERS OF CARBON COPY SETS AND
FORMS

19 TUDOR PLACE - LONDON, W.I.
Telephones: MUSEum 2792, 4985.

Built for the Boss

Here's the chair for the man at the helm—



The KE Chair

EARLY DELIVERY

- Backrest COMPLETELY Adjustable
- Finger Tip Control
- Foam Rubber Cushioning
- Finely Upholstered and Finished

This is a

LEABANK WORKCHAIR

for the Executive

Other models for office and factory.
Details from your local dealer or
direct from:

LEABANK CHAIRS LTD.

19 Clifton House
Euston Road, N.W.1



BUSINESS

To speed contact between the executive and his staff . . . that's the job of the Dictograph Loudspeaking Master Station : at the flick of a key you reach any one of your staff — instantly.

A Dictograph Master Station is as essential to the executive as a typewriter is to his secretary. You ought to know more about the many exclusive features of the Dictograph Telephone System — features designed to save you time.

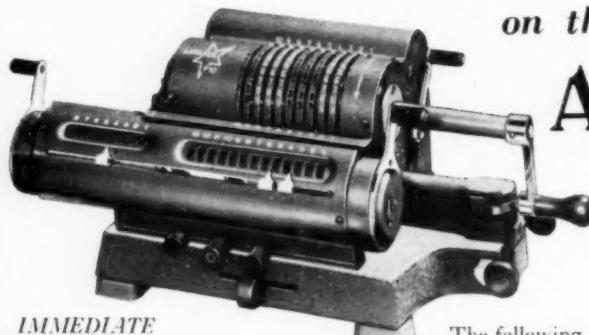
A phone call or postcard will bring you details.



Originators of loudspeaking telephones

DICTOGRAPH TELEPHONES LIMITED

CHIEF SALES OFFICE: 200 ABBEY HOUSE, VICTORIA STREET, SW1 · ABBEY 5572 · BRANCHES THROUGHOUT THE COUNTRY
INTERNAL TELEPHONES · STAFF LOCATION · INDUSTRIAL MUSIC BROADCAST · MASTER CLOCK CONTROLLED TIME SYSTEMS



YOU CAN RECKON
on the

ANTARES

DESIGNED FOR SPEED AND EASE
IN OPERATION

IMMEDIATE
DELIVERY

- | | |
|--|--|
| (1) Tens transmission throughout | (4) Double mechanism for shifting carriage |
| (2) Split products register | (5) Quick and easy clearance |
| (3) Large capacity— $10 \times 11 \times 20$ as well as
$10 \times 8 \times 13$ | (6) Products transfer to setting register |

Write, 'phone or call for particulars

T. S. (OFFICE EQUIPMENT) LTD.
30 NEW BRIDGE STREET, LONDON, E.C.4.

Phone: CITY 1107/8/9

RAILEX
Regd. Trade Mark

BRINGS SUSPENSION TO ALL FILES KEPT ON
SHELVES AND GIVES YOU SUSPENDED
FILING IN HALF THE SPACE

Here is something new—a suspended filing system with files hanging sideways on rails parallel to the walls, with the title tabs all level and visible from the front.

This arrangement doubles the number of files in the same floor space, avoids opening drawers, exposes all titles to view at the same time, speeds up reference and reduces the cost of filing equipment.

Files are given the degree of protection you wish—from locked steel roller-shutter cabinets to rails fixed as open shelving, or fitted to standard cupboards.

You have six different types of files to choose from, suiting every business need, strongly made and suspended to prevent wear.

FILES ARE EASY TO PUT ON OR TAKE OFF THE
RAIL WITH ONE HAND

*Let us send you further particulars of this new system
which has proved itself in use and is rapidly extending*

FRANK WILSON & CO.,
CROSS ST., SOUTHPORT.

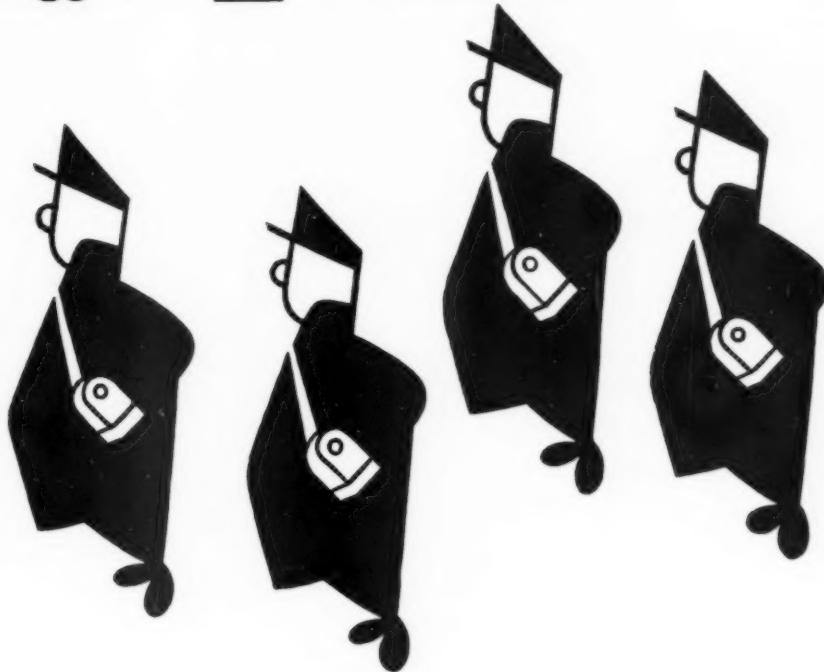
Tel: 2133.

LONDON—11, Lackington St., Moorgate, E.C.2. Tel: MONarch 8907.



400 Suspended Files fit into
this 5-Rail Cupboard

do You Stagger Your Watchman?



SCOTLAND YARD stress the vital importance of staggering the times of Watchmen's rounds. Unless your Watchman regularly carries out the FOUR ESSENTIAL DUTIES of an effective Night Guard the £300 a year he costs you is being wasted. He must

1. Make patrols at **frequent** intervals
2. Cover the whole area to be guarded
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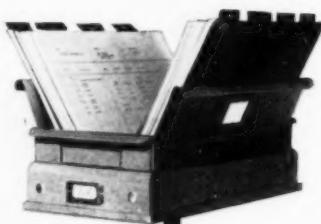
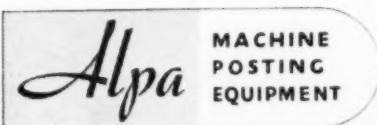
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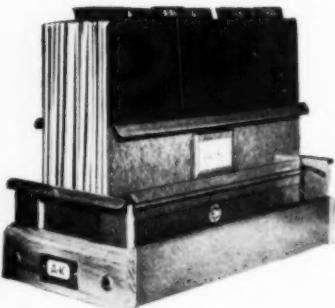
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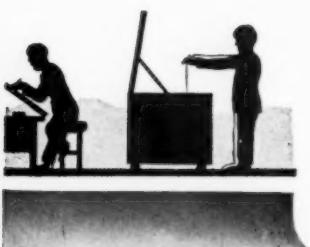
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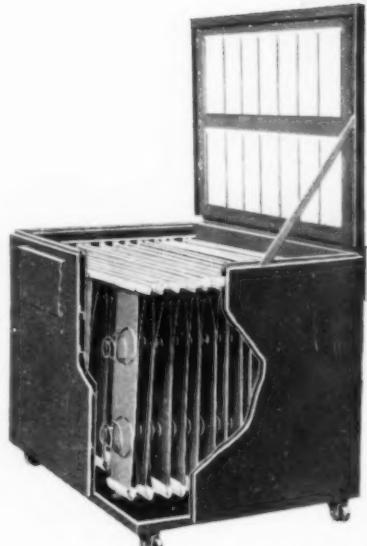
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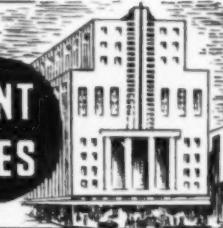
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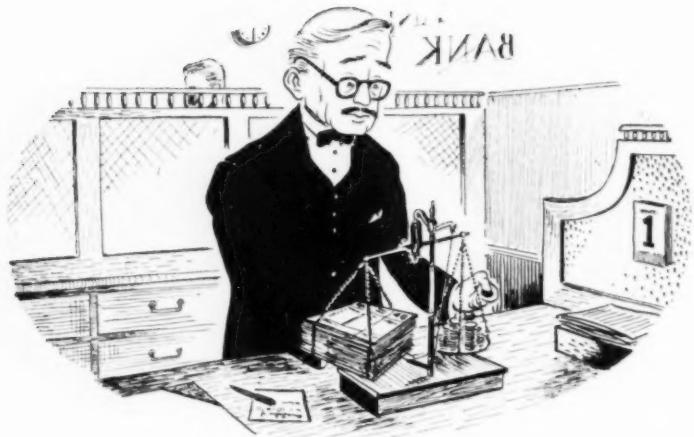
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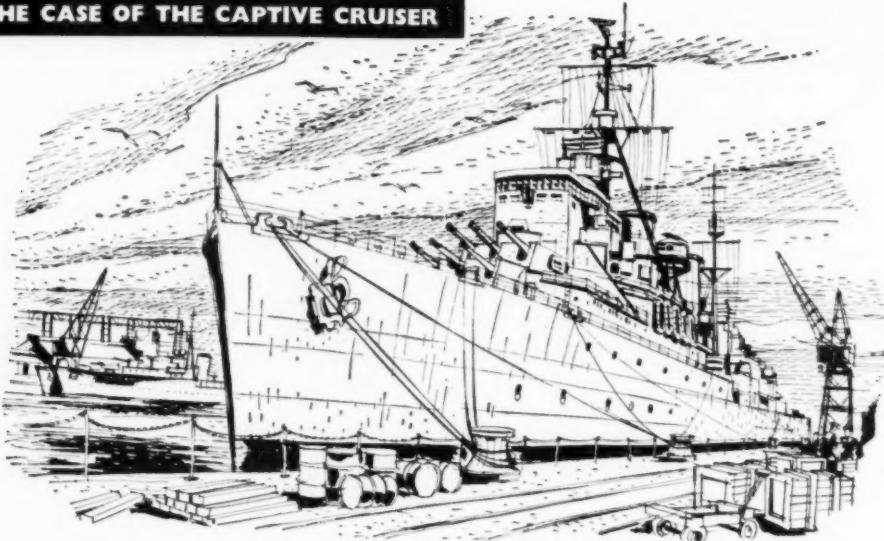
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THE CASE OF THE CAPTIVE CRUISER



Was there a "secret weapon" to set her free?

H.M. Dockyards, serving one of the largest naval forces in the world, were faced with a serious problem.

World War II had suddenly increased their inventory of ships' supplies to almost 300,000 items. Handling this increase with hand accounting methods had become almost impossible despite extra manpower and overtime.

As a result, the speedy movement of stock to keep ships supplied was held up by paperwork.

To free these ships, a new accounting system was needed at once. The Admiralty directed an immediate investigation of all methods and systems. Machine accounting specialists of Burroughs Adding Machine Ltd. were called in.

After investigation, Burroughs specialists suggested a simplified system for handling stock cards and ledgers. They specified Burroughs High Speed Accounting, Duplex Adding, and Adding-Subtracting Machines for the job. The authorities acted on these recommendations.

Today, the issue of supplies in the Royal Dockyards is never held up by paperwork. Increased speed and efficiency of inventory accounting has been achieved despite a big reduction in manpower.

WHAT ABOUT YOU? If you think your business could benefit from faster figuring and accounting, call in Burroughs. They can advise you on all the latest machines and systems, for Burroughs make the world's broadest line of modern record-keeping machines; Adding, Calculating, Accounting, Billing and Statistical Machines and Microfilm equipment.

Call in Burroughs today. Sales and service offices in principal cities around the world. *Burroughs Adding Machine Limited, Avon House, 356-366 Oxford Street, London, W.1.*

MR. J. E. FOOT, Superintending Naval Store Officer of one of H.M. Dockyards, examines one of his Burroughs High Speed Accounting Machines. With him on the right is MR. S. F. HARMER-ELLIOTT, one of the Burroughs men who helped solve the Case of the Captive Cruiser.



For expert advice in any field of business figures . . .

CALL IN Burroughs

The MARCH of BUSINESS

NO LABOUR PROBLEM?

TO PUBLISH an article (page 41) on *Tackling the Labour Shortage* at a time when unemployment is rising, when many firms are working short time and concealed unemployment is rife in others, suggests bad editorial timing. We do not believe it. The under-employment now being experienced in this country and in the U.S.A. (a third of Detroit's labour force is out of work as we write) is, we believe, a temporary phenomenon. It is a product of the switchover from civilian to re-armament production.

Material supplies are sufficient to meet civilian demands or re-armament demands—but not both. If rearmament is to go forward, civilian production must be cut—and is being cut. Materials and labour must be switched.

But a major operation, such as this, cannot take place overnight. A considerable degree of dislocation is inevitable. The present dislocation is being aggravated because the switchover has been delayed too long, and because it is taking place concurrently with other Government action to combat inflation and redress the overseas trade balance.

But, as the rearmament programme gets into its swing, the demand for labour will again increase, and the labour shortage will be back with us. Is it not better to plan ahead for an emergency that can be foreseen, than to wait until it is upon us?

BUSINESS believes so; hence its insistence on tackling tomorrow's labour shortage now.

KING GEORGE VI

As a freeman of the City of London and of many of the City Guilds, the late King George VI was intimately connected with the business world. When he was Duke of York, his frequent visits to factories gave him an insight into industrial problems that he retained even when the burdens of kingship impelled him to concentrate his attentions on even weightier problems of state. He will be mourned not only as a great king and a great man, but also as one who was interested in, and informed on, the economic difficulties that beset his country and, within the bounds of the constitution, did much to solve them.

His beloved daughter, who ascends the throne as Queen Elizabeth II, has inherited that interest; may her reign be as provocative of enterprise as that of her famous ancestor and namesake.

B.C. MONITORS at Reading will in future do their own typing. Recruiting of new dictation typists has been stopped, and the typists' pool of women

who transcribe the monitors' notes is being disbanded. No typist will, however, be discharged. Economics will eventually amount to £20,000 a year.

CRAFT OR SCIENCE?

A SIGNIFICANT sidelight on changing management methods was directed by the Hon. George C. H. Chubb, managing director of Chubb and Son's Lock and Safe Co., Ltd., in a paper on "Security Offered by Locks and Safes," that he read recently to the Royal Society of Arts.

Lock-making is an old-established industry; all the famous names of today were established a century or more ago. It is a comparatively small industry, based very much on the skilled craftsman. But in recent years great changes have taken place.

"The standards of security amongst leading firms have been very constant," said Mr. Chubb, "but in our factory, as in others, in times gone by, though they may have been very real, they would have been most difficult to define. An inspector knew a 'good lock' when he saw it. His practised eye would scan the workmanship, his fingers would feel the contact of the moving parts, his ear would be quick to detect any roughness in its operation.

"Today, however, things must be different. The great number of locks produced, the introduction of modern methods of manufacture,

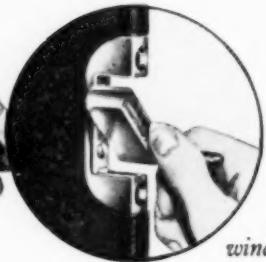


Glasgow Enterprise

The first exhibition of business equipment to be organized by an individual firm in Glasgow was held at the end of January. The exhibition was opened by the Lord Provost of Glasgow, Sir Victor Warren, M.B.E., C.St.J., T.D., LL.D. He is seen in this photograph examining a calculating machine with (on his left) Mr. W. E. Sculthorpe, managing director of Sculthorpe, Ltd., who organized the event. Besides featuring a wide range of office equipment, an electrical contractor and a furnishing firm also had displays with experts on hand to advise on office lighting and decoration problems.

The Century

Thong Ledger



Built-in Winding Key that cannot be lost and is always ready for use, operated by a collapsible winding bar which is released by the touch of a finger tip.

Lightweight metal frames, immensely strong. The solid aluminium clamping bars will never rust or warp. A reliable thong-anchoring device ensures a perfectly flat writing surface. Check-lock action prevents overwinding.

Supplied in 10 standard sizes each cover capable of securely holding 1-500 sheets and Alphabetical Index.

Because it sets a new standard in convenience and efficiency, everyone who uses Ledgers will welcome this entirely new development in Ledger design—which is exclusive to the "Century" Thong Ledger.

Further details can be obtained from your usual supplier.



Illustrated brochures are available

forced in part by the decline in numbers of the hand-craftsmen of years gone by, have brought with them the need to establish scientifically the standards which up till then had not been precisely formulated. The rule of thumb method has rightly had to give way to specifications showing maximum and minimum tolerances, the rigid forms of inspection of parts, and the setting up of systems of quality control."

Here, as in other branches of industry, as the craftsman moves out, the scientist moves in. That the change is good is proved by the current products of the industry; that it is practicable is emphasized by the fact that the industry has not known a strike in 50 years.

* * *

CONTRACTS for the electrification of the Holy City of Mecca have been signed between the Brush ABOE Group and the Saudi Electric Company. Since no non-Moslem may set foot in Mecca, the installation of sub-stations within the city walls will be carried out by Pakistani technicians from Brush-ABOE's Pakistan subsidiary. The power plant itself will be outside the walls, where the ban does not hold.

* * *

LOOK HOMeward, ANGEL

THE LIFE of the Anglo-American Council on Productivity approaches its close. By mid-1952 its programme of visits will have been completed; some 50 teams have been and returned, about 10 have still to go. The Council will probably continue in its present form until all these have published their reports, and, in some other form, may continue to try to get these reports implemented.

Most observers will agree that the teams have done a good job of work. Mr. P. H. Cook, a social scientist on leave from the Australian Ministry of Labour and National Service, was sent by the Tavistock Institute of Human Relations with one of the teams to assess the value of the team technique as a method of communication. He found much to praise and nothing to blame. That the effect of the reports on British industry has been so small is obviously no fault of the technique or of the A.A.C.P.

One reason is implicit in Mr. Cook's emphasis on the value of the preliminary briefing tour, during which members of the team visited a number of British firms in the industry. One operative on

SALIENT FIGURES OF THE MONTH

"BUSINESS" INDICES

		Latest Month	Increase (+) or Decrease (-) on a Month Ago	Year Ago
Production ...	(1946=100)	* 144.3	Same	+ 5.0
Purchasing Power ...	do.	* 110.6	- 0.1	- 0.7

MANPOWER

Total manufacturing industries ...	(thousands)	* 8,748	+ 2	+ 163
Cotton spinning and weaving do.	do.	* 335.7	+ 0.3	+ 4.9
Coal (on colliery books) ... do.	do.	697	+ 2	+ 9
Reg. unemployed (U.K.) ... do.	do.	342.7	+ 19.7	+ 11.9

PRODUCTION

Index of production (1946=100)		* 153	+ 2	Same
Coal (average weekly output) ... (thousand tons)		4,257	- 300	+ 114
Steel ingots and castings (do.) do.		288	- 28	- 8
Cotton yarn (do.) (million lb.)		* 20.4	+ 0.2	+ 0.9
Woven wool fabrics (do.) (million linear yards)		24.90	- 6.85	- 9.24
Passenger cars (do.) (thousands)		7.88	- 2.41	- 0.99
Commercial vehicles (do.) ... do.		4.31	- 1.15	- 0.23
Permanent houses completed do.		* 17.82	+ 0.10	+ 0.37

TRADE

Value of imports (£ millions)		† 357.2	+ 43.1	+ 59.3
Value of exports ... do.		† 264.2	+ 50.9	+ 49.8
Freight train traffic (million tons)		† 5.28	- 0.56	+ 0.14
Retail sales ... (1947=100)		201	+ 44	+ 19

FINANCE

Currency in circulation (£m.)		1,362	+ 42	+ 73
Deposits in London Clearing Banks do.		* 6,189	- 15	- 62
Provincial cheque clearings (average working day) ... do.		7.54	+ 0.10	0.26

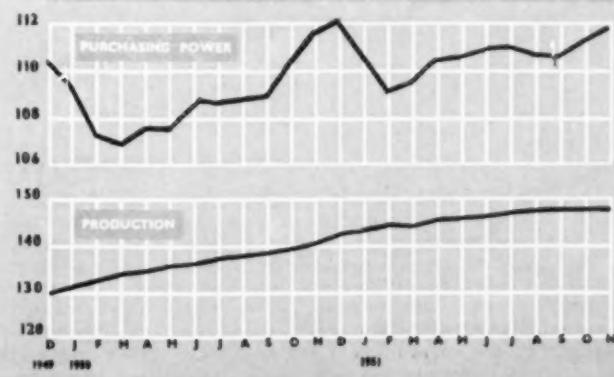
WAGES AND PRICES

Weekly wage rates (1947=100)		126	+ 1	+ 14
Retail prices ... do.		130	- 1	+ 14
Raw material prices (1949=100)		† 180.7	- 0.2	- 16.8
Mech. eng. Ind. ... do.		† 143.2	+ 0.6	+ 16.1
Elec. machinery ... do.		† 160.0	+ 1.6	+ 16.5
Building, etc ... do.		† 134.0	+ 1.5	+ 21.8
Import prices ... (1950=100)		135	+ 1	+ 23
Export prices ... do.		127	+ 1	+ 21

*November. †January. ‡Four weeks to December 30th, 1951

All other figures refer to December, 1951.

"BUSINESS" INDICES (1946=100)



The image shows a vintage Remington typewriter advertisement. The top half features a large, bold 'Remington' logo in a serif font, with a stylized 'R' that has a horizontal bar through it. Below the logo, the words 'World's BUSIEST Typewriter' are repeated in a smaller, slanted font. The bottom half of the image shows a close-up of a person's hands; one hand holds a pen over a piece of paper, while the other hand rests on the typewriter's keyboard. The background is plain white.



The World's **BUSIEST** Typewriter

Superb in appearance and efficiency . . . embracing every latest device for speedier, easier typing . . . the new Remington is in action for business throughout the world . . . creating new records, new standards. Particularly important features are the Keyboard Margin Control, Keytrip Device for automatic release of jammed type-bars, Touch Regulator. And it is made in Britain. Write today for illustrated folder of the New Remington Typewriter to Dept. KMC. 14.

REMINGTON RAND LTD., 1 NEW OXFORD ST., LONDON, W.C.1. Tel: CHAuncy 8888

the team had worked in the same plant for 40 years, and in that time had not seen any other department, even in his own plant. During this period he had been making essentially the same product, but did not know for what it was used, and when he asked his manager he found that he did not know either. Technical and managerial members of the team, though better equipped, also found the briefing tour of value. It seems obvious that British industry has a lot to learn from its neighbours—if only it will open its doors

* * *

A T A TIME of rising transport costs and increased freight charges and passenger fares, it is pleasant to record that the Burton-on-Trent authorities have actually reduced the fares on their buses. They hope to attract more passengers and thus wipe off a deficit.

* * *

THE PROFITS PICTURE

PROFITS TAXES have produced one indirect result: the returns have enabled the Inland Revenue to make public how industry has been getting on, in one respect at least, during the last decade.

Total profits rose from about £1,000m. in 1939-40 to £2,284m. in 1949-50, an increase of 128 per cent. after depreciation, but before taxation. But profits of agriculture during this period rose from £3m. to £140m., with a rise of £60m. between 1948-9 and 1949-50 alone. Textiles also boomed. Trading profits of cotton companies rose from £4m. to £40m., those of wool companies from £3m. to £36m., and those of other textile concerns from £8m. to £56m.

A similar development is noted when profits are expressed as a percentage of turnover. In the

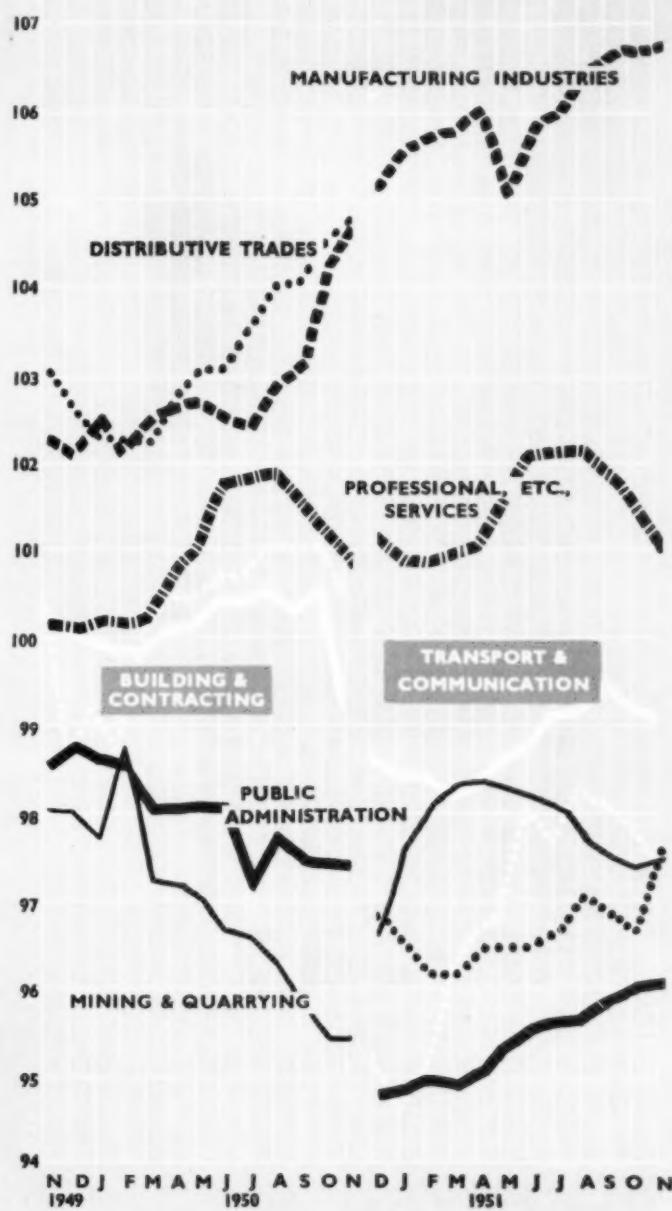
HOW THE CHART IS CALCULATED

The chart shows movements of labour over the last two years. The number employed in each category is expressed as a percentage of the number employed in that category in December, 1948. The hiatus is due to the revision of the official figures in the light of information derived from the counts of National Insurance cards in June, 1949, and June, 1950. This will affect the absolute height of the line, but should not materially alter the trend as shown by the relative slope.

MARCH, 1952

TRENDS IN MANPOWER

I DEC., 1948 = 100



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case of cotton the ratio rose from 4.4 per cent. in 1939-40 to 11.4 per cent. in 1949-50; for wool the rise was from 2.8 to 12.7 per cent., and for other textile companies from 7.3 to 12.4 per cent.

The proportion of profits to turnover in the electrical engineering, vehicle and chemical industries, and in the food and retail trades are much the same as they were before the war. On the other hand, there has been a sharp fall in profitability among breweries and tobacco companies.

★ ★ ★

ACCORDING to the Inland Transport Committee of the United Nations Economic Commission for Europe, Britain had more motor vehicles in proportion to her population in 1950 than any other European country. The total amounted to 3,295,170 motor vehicles of all types—one to every 15 people or 11 to every kilometre of roadway. There were 2,316,718 private cars, compared with 2,190,712 in 1949.

★ ★ ★

COST OF CLOTHING

CLTHING manufacturers are feeling the pinch. Retail sales are falling off, largely because potential customers will not, or cannot, pay current prices. In the immediate future competition will inevitably bring prices down, and the manufacturer who cannot cut his costs will be en route to Carey Street.

With high and rising fabric prices, high wages, and the unsatisfactory purchase tax position, the only way manufacturing costs can be cut is by higher output per man-hour. That the field is wide open is suggested by the report of the Clothing Industry Development Council; this boldly asserts that it could, within three years, increase the productivity throughout the majority of Britain's clothing factories by 25 per cent.

The claim is substantiated by hard fact. Over the past six months the Council has, with a technical department at less than three-quarters strength, brought about an average increase in productivity of 30 per cent. to the firms reorganized by it. "In most instances," states the report, "this has been done, not necessarily by applying more physical effort, but by improving methods and management techniques, so that the same effort produces a greater output."

Output per person in the American industry, it is claimed, is at least 75 per cent. higher than in

PEOPLE • PRODUCTS • PLACES



CHANGE AT HOOVER—New general works manager of Hoover, Ltd., is B. H. Dyson, who has been appointed to succeed W. Puckey, who recently resigned. Previously deputy general works manager, Mr. Dyson joined the company in 1937, and became a director of Hoover (Washing Machines), Ltd., in 1948.



DESIGNED FOR DEMONSTRATING—The new London showroom of Block & Anderson, Ltd., has been specially designed to exhibit the firm's products. The type and finish of the machines influenced the choice of grey and green as the main colour scheme. Demonstration tables designed for B. & A. calculating machines are separated by dwarf partitions and lit by concealed lighting and overhead spotlights operated by demonstrators.



WARMLY RECEIVED—Operating from a.c. or d.c. mains, the Limpet pre-heater keeps your car engine warm during cold nights by circulating heated water round it. It is clamped to the engine in place of a core plug or cover plate; no connecting pipes or alterations to the engine are necessary.



CABLE BY AIR—Latest way of laying overhead cables is by helicopter. Used successfully in the Malvern Hills by the Midlands Electricity Board, the idea avoided felling trees and leaving a track across a wooded valley. The helicopter actually laid a pilot line which was used to pull across a light steel cable, which was in turn used to pull across one of the steel-cored aluminium line conductors.

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the British industry, with the use of almost identical equipment. Even more serious, we are now from 10 to 40 per cent. below the productivity level of the main European countries.

★ ★ ★

COTTON, WOOL, JUTE

ONE BY ONE, the old-established textile industries are modernizing their wage structures. For the piecemeal systems that have grown up over the years are being substituted rational structures calculated on modern principles of job evaluation and payment by results.

The efforts of the cotton and wool industries in this direction have already been described by BUSINESS. Now comes news that a new wage structure is being considered by the jute industry.

The need for a change was emphasized in the working party report on jute in 1948, and negotiations have been going on ever since. More than 17,000 workers in the Dundee area are affected, and the new structure will apply to all those redeployed under work measurements made by industrial consultants. It will, however, be several years before the change is complete.

The new structure was worked out in three stages. The first was the assessment of every job in the industry by allotting points for 17 different factors, such as the length of training period, the skill needed, responsibility, alertness to detail, physical requirements, and risk of accident. The second, the translation of the points into money values, is nearly complete. There will soon be a series of basic rates for every job in the industry, plus a series of incentive rates to give 33½ per cent. over the basic rates for a standard performance, where operators have been redeployed and given an adequate work load. The final stage will be for the operatives covered to be redeployed, the various work loads measured, and the bonus system put into operation throughout the industry.

★ ★ ★

OUR cover picture this month is an impressive low-angle, close-up of one of B.O.A.C.'s 450 m.p.h. Comet jet airliners. Comets go into service on the Johannesburg route this spring. How to get the most out of business travel by air is dealt with in an article in this issue. (Page 46.)

MARCH, 1952



PLASTIC PROGRESS—Five years ago Henry J. Gordon, managing director of H. J. Gordon & Sons, Ltd., started a plastics fancy goods business in an old army hut. Today the enterprise includes three associated companies and they make everything—in plastic—from egg-timers to road traffic signs. The latter are cheaper than the conventional type, climate-proof and require no maintenance.



PLANT FOR PLASTICS—Inside Thomas De la Rue & Co., Ltd's., new plastic laminate factory at Tynemouth. Delaron—a laminate widely used in industry—and Formica and Trafolyte laminates are produced at the rate of over 500 tons a month—a figure they hope to double next year. The photograph shows the press bay.



PUSH BUTTON SHOWROOM—Novel and effective way of demonstrating fluorescent lighting fittings has been devised by Thorn Electrical Industries, Ltd., in their new London showrooms. Twenty-six different fittings are concealed from view between a series of ceiling baffles. Touch a switch and the one you want slides into view—lighting automatically at the same time.



SHOW SPECIAL—So that Austin's exhibits at the Brussels Motor Show arrived in perfect condition, they chartered a complete train which took them direct from Longbridge to Brussels via the Harwich-Zeebrugge Ferry. This is the first time a special train has been used to carry a complete exhibit to a foreign show and Austin's plan to use the same method for other international events. The train carried 18 vehicles, plus all the stand furnishings.

P.P.P.—continued on page 39



Roller towels mean waiting and congestion — lost hours — transmission of germs—expensive laundry bills.

How to cut absenteeism

The main cause of lost time in industry, according to the Medical Research Council, is sickness absence. Much of this absenteeism can be traced to the transmission of contagious ailments through the use of communal towels.



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"BUSINESS" AT THE BUSINESS EFFICIENCY EXHIBITION—An Assistant Editor flew to Birmingham with copies of our special exhibition issue.



WELCOME—B. B. Dyer, President of O.A.B.E.T.A., welcomes Sir Peter Bennett, Parliamentary Secretary to the Ministry of Labour, who opened the B.E.E., in the absence of the Minister, Sir Walter Monckton.



AT OUR STAND—Above, Sir Peter comments on our issue to the Editor. Below, the Lord Mayor of Birmingham receives his copy.

Does Mr Damocles work for you?

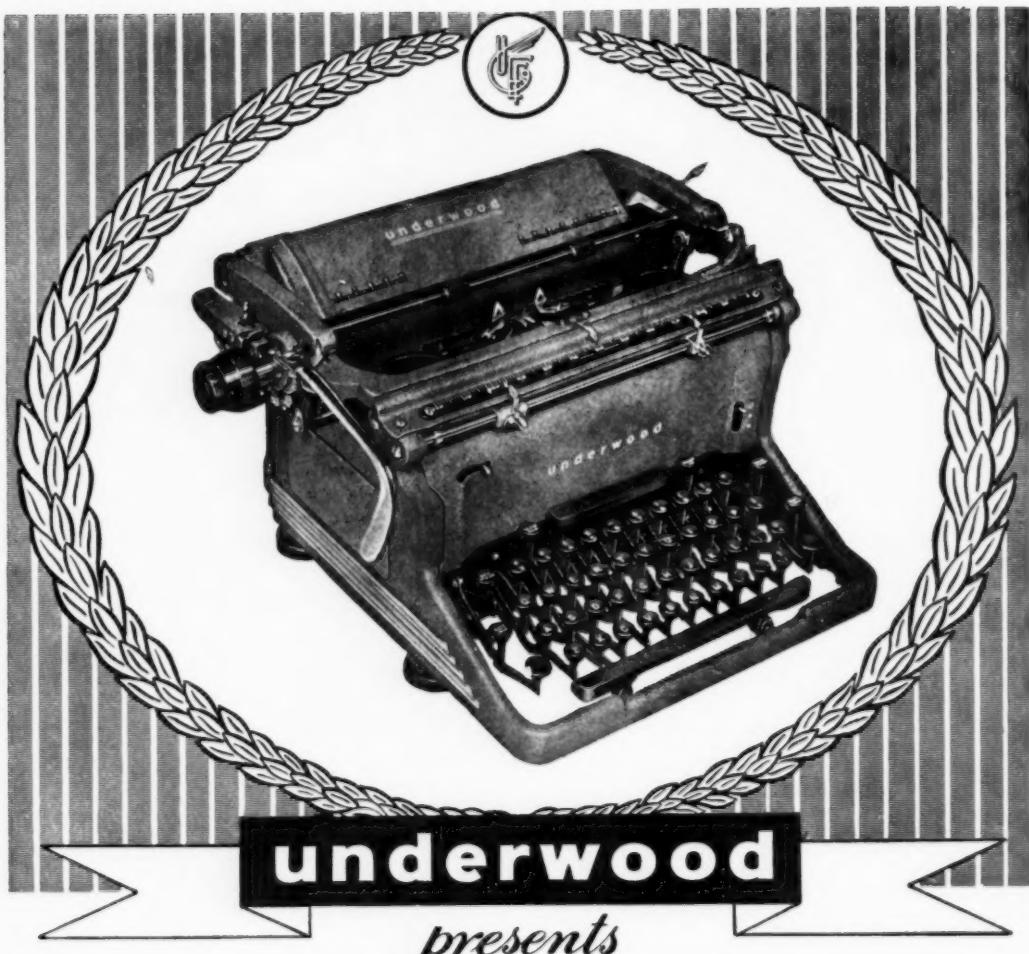


Damocles was a courtier of the ancient Sicilian King Dionysius with whom he changed places for a day. Delight with his regal state was manifest until he glanced up and saw above his head a sword suspended by a single thread. Does the "sword of Damocles" hang over your office? Are you constantly in a state of turmoil—of impending crisis? Recurring routine work can easily upset the daily round. Sack Mr. Damocles and his sword and install BRADMA. From then on you will save labour and ensure accuracy, with one efficient operation instead of many fallible human hands. Expert advice is freely available for the application of BRADMA mechanisation to your clerical needs.

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a 10-inch writing line on correspondence models . . . an instantly removable Platen permitting interchange for varying copy work . . . a newly designed Line Space Lever providing quicker and easier carriage return and, above all, Rhythm-Touch, Rhythm-Shift and Finger-Form Keys, resulting in a perfectly balanced keyboard for increased speed and freedom from fatigue.

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Governments—actual and potential—are committed to maintaining full employment. This means that businessmen, in spite of the temporary wave of unemployment, will have to continue to chase labour. This article—first of two—explores the use of marginal workers, the school-leaver, the elderly, married women, foreign labour and so on. Next month the problem of getting the best out of existing staff will be covered.



Tackling the Labour Shortage

By PHILIP F. DYER

THREE are only two ways in which the businessman faced with a shortage of labour can tackle the problem. First, he can get more workers into the factory. Secondly, he can get more work out of the workers he employs, either by inducing them to work harder, or by helping them to work faster by better methods and machines. Or, of course, he can do both. In this article we shall concentrate on the first of these methods—that of recruiting new labour.

Time was when an expansion in trade merely meant putting up a notice on the factory gates, "Hands Wanted." That was followed, in the war and immediate post-war years, by a period of over-full employment, with three jobs available for every man to fill one. That, too, is passing. Material shortages are meaning that some employers are having

to stand off workers. But the effects of this are patchy and—it is to be hoped—temporary. All Governments—actual and potential—are committed to the maintenance of "full employment." Hence it is likely that businessmen in future will have to chase labour in the same manner as in recent years.

Fundamentally, the only source of new labour is the flow of boys and girls leaving school. Today there are not enough of these to meet the demand for juvenile labour. The businessman who wants to get his share of the school-leavers will have to sell the opportunities that employment in his business can offer. The questions immediately arise—to whom do I sell, what do I offer, and how do I sell it?

For some time the experts have been trying to find the answer to the question: Why does a juvenile

leaving school take this job rather than that? The latest, and perhaps the most comprehensive, attempt is a survey of 1,300 Glasgow boys from the day they left school in 1947, through the next three years. The answers (and there are many) fill a book that is well worth the study of any businessman interested in juvenile labour. Here we can only stress a few highlights. Perhaps the most important is the fact that, while 40 per cent. of the boys took the job they finally settled down into through the influence of parents, teachers and employment officers, 60 per cent. found it for themselves. Thus the aspiring employer must sell himself not merely to parents and teachers, but to the juveniles themselves. And this means, among other things, that he must vary his sales message.

Parents, teachers and employment officers are rational adults. They are interested in such things as pay, working conditions, and (above all) promotion prospects. For the most part, however, they are sadly uninformed. It is up to the businessman to provide the information they lack. Few firms have either the facilities or the influence of Imperial Chemical Industries, Ltd., whose Metals Division at Witton recently ran a



Inside the Austin junior car factory in South Wales, where disabled miners are employed.

two-day course for Birmingham school teachers and youth employment officers, given by Mr. M. J. S. Clapham, the personnel director. But they can do something on the same lines. They can, for instance, at comparatively small cost, produce a brochure outlining their apprenticeship schemes, further training and educational facilities, canteen, health and welfare arrangements and so on, and disseminate it widely in the area from which they hope to draw their labour. They can send it to school teachers, youth club leaders, Scoutmasters and other people whose activities draw them, however remotely, into giving advice on careers to parents—local authority officials, doctors and dentists (who may put it in their waiting rooms), librarians, bank managers, even other employers of juvenile labour who may be turning away aspirants, and so say, "Why don't you try X's?"

Interest Comes First

For the juveniles themselves a different approach is needed. In the Glasgow survey, out of 837 boys who chose their last job themselves and considered it to be permanent, half had chosen it for its interest. Security came a bad second with 17 per cent., and pay third with 12 per cent. These findings, surprising as they may seem, have been confirmed in other investigations. Joseph Lucas, Ltd., recently ran a works competition among their 17,000 workers in eight Birmingham factories, in which they were invited to name which of seven factors weighed with them in considering their job. Final assessment gave

the following results: — (1) security and continuity of the job; (2) interest in the job; (3) welfare facilities and working conditions; (4) high level of earnings; (5) prospects of advancement and recognition of merit; (6) opportunity to contribute to the success of the company through joint consultation; and (7) fair and able supervisors. The higher ranking of security may well be due to the fact that older employees were included in the competition; the significant factor is the low place held by earnings in each case. The moral is that employers, in their

appeal for recruits, particularly from young workers, should emphasize job interest, rather than earnings.

The best method of getting the story over to youngsters is to let them see for themselves. We are inclined to forget that the factory that is all too familiar to ourselves is a place of mystery and romance to a schoolboy, who has most probably never been inside any factory. "Open days" are one method many progressive firms are adopting to arouse interest among juveniles; invitations are issued to the public to tour the factory—and to bring their children. In many cases local school teachers will gladly bring parties of their children round. So will youth club leaders. Film shows are another interest getter. There are many industrial films now available, showing the different industrial processes, even if they do not feature the actual works. These can be shown in a firm's canteen to invited audiences of youths about to leave school, with a follow-up talk linking the film with the specific factory. The expenditure involved is comparatively small, and may well yield a good return in enquiries for employment.

8 Sources of Marginal Workers

1. **BOYS AND GIRLS LEAVING SCHOOL.** To get the school-leaver the businessman has to sell his opportunities to parents, teachers and the juveniles.
2. **GREEN LABOUR IN RURAL AREAS.** By establishing branch factories in non-industrial areas, firms can tap local untrained labour.
3. **FOREIGN LABOUR.** Employers are free to find and engage foreign workers under certain conditions.
4. **MARRIED WOMEN.** Frequently available on a part-time basis, they can often be used by arranging special shifts or providing nurseries.
5. **USE OF OUTWORKERS.** Although not applicable to all industries this practice can be extended.
6. **DISABLED PERSONS.** Many jobs can be found for unfit persons and blind workers.
7. **ELDERLY WORKERS.** Older workers can be successfully employed, providing the job is within their capacity.
8. **TEMPORARY WORKERS.** Use can be made of university and technical college students during vacation periods.

The tendency today is for firms to train skilled workers and executives from promising juvenile entrants. This is not always possible, however, and adults must be obtained from somewhere. The problem is difficult, but not insoluble. In the great conurbations—London, Birmingham, Manchester—it is impossible to obtain skilled adult labour. But in other areas it is not quite so difficult. There are, for instance, the special areas and the new towns, where many companies have opened new factories with Government help. But, quite apart from the officially-sponsored movements, there has in the last few years been a considerable number of firms who have solved their labour problems by opening up branch factories in areas, often in the country, where labour was available. Numerous cases have been reported in BUSINESS in the last two years. A radio firm started up in Malmesbury (Wiltshire). An engineering works went to Burnham Market (Norfolk). A hosiery firm set up a branch at Margate (Kent). A cotton yarn firm went to Stamford (Lincoln). A wool firm went to Darlington. A button factory went to West Auckland (Co. Durham). A clothing firm went to Plymouth (Devon). In some cases new factories were built, but in others existing buildings—a water mill and a disused chapel among them—were used. In each case the availability of labour was an important, if not the dominating factor. A move of this type is, of course, only possible for industries where the machinery involved is comparatively portable. Heavy industries will have to use their local labour or bring their labour into the area.

Foreign Labour

One source of such workers is foreign labour. The first influx of foreign labour into Britain consisted of Poles, displaced persons and German ex-prisoners of war, but these have now been absorbed. The remaining sources are temporary immigrants from countries like Eire, Italy, Austria, Malta and others with an unemployment problem.

Employers are, however, free to find and engage foreign workers under certain conditions. An em-

One of the workshops run by Rubery Owen, & Co., Ltd., for elderly workers.



ployer who wishes to bring an individual foreign national to this country must make written application on a form to be obtained from any Local Office of the Ministry of Labour, setting out full details of the terms and conditions of the work offered. The grant of permits is subject to three general conditions:

(a) that the proposed employment of a foreigner is reasonable and necessary in the circumstances;

(b) that adequate efforts have been made by the employer to find a suitable worker among British subjects or foreigners who were regarded as permanent residents in this country;

(c) that the wages and conditions of employment proposed for the foreigner were not less favourable than those commonly accorded to British employees for similar work in the district concerned.

The four main groups of employment in which permits are issued are:

(i) industrial and commercial employment;

(ii) domestic work;

(iii) employment in the field of entertainment, including concerts, theatres, music-halls, circuses, boxing and the film industry;

(iv) student-trainee employment.

Owing to the large demand for, and the great shortage of, domes-

tic workers, permits are granted freely in respect of women for work of this nature in private households, hospitals and similar institutions and educational establishments. Special arrangements apply to teachers and nurses. In the entertainment industry various arrangements have been agreed by, or with, the interests concerned. (Without exception, permits for foreigners in this industry are granted for the limited period relating to the specific engagements for which they are required.)

Permits Granted

In the industrial and commercial groups it is the practice to grant permits freely for the employment of foreigners who possess special skills, qualifications or experience not commonly available in this country. Permits are also granted for skilled workers for essential industries where there is an overall shortage of such workers, and even for unskilled workers in an industry particularly important to the national economy.

In the case of student-trainee employment the policy adopted in granting permits is designed to encourage visits and exchanges of young workers between this and other countries.

New arrangements agreed with the German Federal Department of Labour came into operation early in 1950, providing for em-

ployers in Great Britain to be put into direct touch with suitable German domestic workers through the employment services of the two countries. Any workers brought to this country as a result of these activities, however, still fall under the ordinary permit arrangements described above.

Individual Permits

In this indirect sense the Ministry has assisted in the recruitment of other foreign workers, although the final arrangements were dealt with under the individual permit system. Since the early part of this year the Ministry has assisted, through its officials here and in Italy, employers in essential industries (other than coal mining) unable to obtain enough unskilled labour, to send their own agent to Italy to carry out selection and recruitment for themselves and at their own expense. Employers making use of these arrangements must satisfy the department that they have secured trade union agreement to the recruitment of foreign labour, and that they have obtained lodgings for the immigrants. Under these arrangements approximately 2,000 Italians had arrived in the United Kingdom since May last year for employment in the following industries:

Cement.
Chemicals,
Bricks, pipes and tiles.
Iron ore mining.
Iron and steel foundries.
Quarrying.
Railways.
Textiles.
Tinplate and scrap metal.



To get young workers, the employer must not only sell himself to parents and teachers but to the juveniles themselves . . .

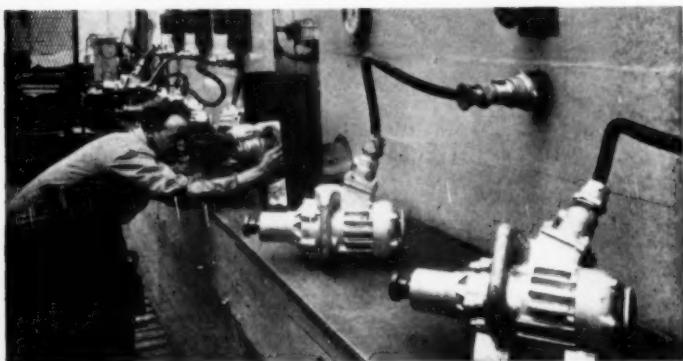
The main source of additional British male labour must of necessity be found by using marginal sources, i.e., grades of labour that, in former times, would not be found in the labour market. Numerically, the most important source available is the elderly worker. It will become more important as time goes on. At the turn of the century there were ten people of "pensionable age" (men over 65 and women over 60) for every 100 of the population of working age; today there are 20, and in a generation there will be 30. But if the working population is growing older, it is also growing healthier, and a man of 65, or a woman of 60, is a far better proposition as a worker than his grandparents or great-grandparents were at the same age. He can still tackle some jobs as well as, if not better than, he could when he was younger, though

there are obviously some jobs, particularly those demanding high speed, that he cannot undertake.

A good deal of work has recently been done to determine the conditions under which elderly workers can operate best. Important reports have been published on the subject by the Industrial Welfare Society, the Nuffield Foundation, and the Cambridge Laboratory Unit for Research into Problems of the Ageing. The results of this research were summed up in a lecture given by Sir Frederick Bartlett, arranged by the Ministry of Labour recently. Research, he said, had shown that as people grew older they preferred to work at a slower speed, although their actual speed of working might show no fall. Normally, if a skilled operation was learned early in life, the worker could generally continue to carry out that operation economically until well past retiring age. But when changing conditions meant new methods the older worker was at a disadvantage.

If there was any serious trouble, it would be with speed, and for the worker in, or approaching, the upper reaches of middle age, high rates of imposed speed, which must be combined with considerable bodily agility, were a definite bar. The difficulties were often increased by modern forms of bonus incentive. There should be planning according to natural abilities and age groups.

A number of firms have been working on these lines for some time. Some, like Rubery Owen and Co., Ltd., have erected special



And get skilled adult labour by training unskilled workers—either juveniles or marginal sources of labour.

workshops for elderly workers, where the pace is not so hot as in the main workshops. Some like Baker, Perkins, Ltd., have transferred elderly workers from heavy manual work to lighter work, using them as office messengers and so on. While the sorting out of jobs suitable for elderly workers may take some effort, it should not prove difficult, and should assist the labour problem materially. The Industrial Welfare Society's investigation of current practice in 400 firms showed that the proportion of male elderly workers (as against all workers) employed by industrial firms dropped from 4.3 per cent. in 1945 to 2.7 per cent. in 1950, although for women it was slightly increased. "We are not," comments the society, "using this potential source of labour as effectively as we might."

Women Workers

For adult women workers, the major source of new employees is, of course, the ranks of married women. Married women, however, have their own very pressing labour problem, and it is only by accommodating themselves to this that management can hope to attract married women to their staff. The great majority of married women can only work on a part-time basis, and this means the organization of interlocking shifts. That this can be done satisfactorily is shown by the experience of a considerable number of firms.

When the Shredded Wheat Co., Ltd., of Welwyn Garden City, needed to expand output, they switched from a single to a double shift, bringing in labour from surrounding towns by special transport. Some time later, they experienced difficulties at peak relief periods, and to meet these they started two part-time shifts, from 6.0 to 7.30 a.m. and from 3.45 to 8.15 p.m., specifically for married women living locally and independent of bus services. They managed to recruit all the labour they needed for these shifts without difficulty. Recruitment of further labour for these shifts was subsequently suspended, but Shredded Wheat were perfectly satisfied with the arrangement and would develop it again if circumstances warranted.

Another firm in the same area organizes its shifts to coincide



Brook Motors, Ltd., operate a "home winders" scheme. They have 100 women workers who turned out 10,000 stators—at home—in a year.

with the school attendance periods so that mothers with children of school-leaving age can take their children to school on the way to work and collect them again on leaving.

Many firms, particularly in the Lancashire and Yorkshire textile areas, have secured married women workers by providing nursery facilities in premises adjacent to the mill. The experience of one such firm—Shiloh Mills, Ltd.—was described in BUSINESS in January, 1951. It is, of course, essential that such nurseries should be staffed by competent workers, and the normal procedure is to appoint a State Registered or children's trained nurse to run the nursery.

Where the provision of nurseries is impossible, married women, even with children to care for, may be brought into a production team by taking the work to them in their home. "Outwork" of this nature is traditional in some industries, but experience has shown that there are many others where it can usefully be tried. One London firm operates a punched card service that carries out accounting and statistical work for different clients. Like most offices, it suffered from a high labour turnover; in particular, many skilled punchers left to get married. To retain their services the firm has now supplied a considerable number of them with punching machines that they can operate in their own homes, fitting in the work between the household chores. Work is delivered to and collected from them by van. A similar arrangement has recently

been introduced in a different field by Brook Motors, Ltd., of Huddersfield.

The idea of "home winders" was first introduced during the war when skilled labour was scarce. It was decided to let the housewife, prevented by domestic duties from going out to work, do a little in her spare time at home.

Winding is not a mechanical operation and, therefore, simple equipment only was needed. Brook Motors, Ltd., supplied each of the home winders with a small bench, along with various hand tools necessary for the job of winding the stator frame, which is the stationary part of an electric motor that carries the coil winding.

Vans call at each home every day to collect the completed work and deliver a fresh supply of stators to be wound.

Today there are 100 women home workers with an output of over 10,000 stators a year. All have been trained previously in the factory at Huddersfield, and their help has been invaluable in maintaining output.

Another fruitful field that has not yet been fully exploited is that of the unfit worker. There are regulations governing the employment of war disabled workers—but the regulation figure is a minimum, and there is no limit, bar the number of suitable jobs available, to the number that any firm can employ.

The obvious examples are the Government Remploy factories and the Haig Poppy Factory. But there are also a considerable num-

Continued on page 94

How to Plan—and Profit from— Business Trips by Air

Top executives are making more and more use of air travel to save time and speed their business. But to get the most out of flying is an art. This article—based on the writer's own experience—explains how to get the maximum benefit from modern air travel.

By H. DESCHAMPSNEUFS

Head of Overseas Department, F. C. Pritchard, Wood & Partners, Ltd.

HIgh-pressure business travel by air on a world-wide scale is now the common lot of large numbers of business executives, particularly those engaged in the import and export trade. Already there are many with thousands of miles in the air to their credit—people who, for example, think nothing of leaving London on a Sunday evening and being hard at work in Montreal on Monday morning.

Yet, because this is such a modern phenomenon, there has hardly been time for a real technique for this kind of travel to be evolved. But the executive can learn from the experiences of others, thereby making business air travel considerably easier, more pleasant and more efficient.

This was brought home to me very forcibly the other day when, talking about a forthcoming trip round the world I am to under-

take, a friend asked me if I checked over my suitcases before I left. After looking at my best one I was, in fact, horrified to find that two of the protecting metal studs had been torn off when I was in Africa last year. There is, luckily, plenty of time for me to have them replaced before my next trip, but a broken suitcase at an airport, with only a few minutes to catch a 'plane, could have disastrous results on a schedule, so it's worth checking up brief cases, suitcases, well before you leave.

WHAT WILL YOU WEAR?

With the limitations on weight enforced by air travel, the choosing and packing of clothes requires considerable attention. The executive is expected to be smartly dressed at all times, and frayed shirt cuffs, baggy trousers, and rumpled collars must be forgotten,

and it is best to travel light and with good and, if possible, new clothes. For actual travelling by air wear something which will come to little harm, like a blazer and flannel trousers, and keep any suits for wearing in the country concerned, so that they will always be well pressed. Shoes must be comfortable and smart and in excellent repair. You can always buy odd shirts, handkerchiefs and so on, but you cannot pick up an odd suit or pair of shoes so easily.

Always take buttons, needle and cotton with which to do running repairs, as well as a darning needle and some wool for one's socks. You can certainly buy the odd pair of socks, but not just as you are hurrying to an appointment, nor on a Sunday, etc.

Not being a very expert packer, the writer is in no position to offer constructive advice on this subject, but one has just got to get

used to living in a suitcase, and not leaving a trail of possessions scattered round the globe. It is also essential to work out carefully what weight of clothing you will require. To have heavy suits and overcoats and underwear dragging on you in Jamaica is not amusing. Another item not to be forgotten is a pair of dark glasses.

As your one or two suitcases will be stowed away in the aircraft, you will need a small bag for overnight journeys. The airlines issue these free on certain occasions, and in them you can put just enough to freshen you up in the morning. A pair of slippers is important, because even by day, to kick off your shoes and put on a pair of slippers and sleep is a wonderful way of relaxing in an aeroplane. For the rest your comfort is assured, because the airlines look after you in every possible way, with food, drink and even amusements.

HEALTH AND HAPPINESS

Bad health is probably the worst enemy to be met in this kind of business travel. To fly quickly from one country to another, from a hot climate to a cold one, from a civilized town to a country village, does impose a terrific strain on the system. There are various health rules that are of great importance. Firstly, a very careful adherence to all the regulations regarding vaccination, inoculation, etc. People who try to escape these things are adopting a shortsighted policy.

Secondly, take a few days off before any long trip. This is usually considered impossible, but it should be done and it can be done. Thirdly, aspirin, or some similar remedy, is a "must" for relieving headaches and nervous strain.



The phrase "B.O.A.C. takes good care of you" includes the inner man. The only precaution the traveller must take is to avoid over-eating.

Many people feel a little worked up before an air trip and there is nothing to be ashamed of in that. A couple of aspirin make a lot of difference. An indigestion remedy always helps, because it is extremely difficult not to eat too much on trips like this—especially do you realize this when you have your first meal on the 'plane. In very hot climates paludrine is essential against malaria, and the liberal use of talcum powder on the feet will avoid "athlete's foot." Water must always be checked to see that it is safe to drink, also uncooked vegetables and fruit.

Perhaps more important than anything else is to relax. It is one of the hardest things to do. Do not work all the time on the flight, but idle the time away, preferably in semi-consciousness. Try reading "thrillers" or other lighthearted books in off-duty

moments; take the odd week-end off, and just do nothing for a couple of days. Avoid having a business dinner every night, but eat alone and go to the pictures alone for a change. Take a morning off and do some sight-seeing; remember you will sometimes have to fight feelings of acute loneliness on trips of this kind, so that your relaxation does merit careful study. It is because so much work has to be crammed into such a short space of time on business air trips that personal comfort is so important.

A TRAVELLING OFFICE

What work should you take with you and where should you keep it? The briefcase can become a complete travelling

It is best to travel light, and clothes should be carefully chosen.



Sky Lines

- ... Plan all your trip in advance, to have a complete itinerary arranged avoids delays.
- ... Make your appointments and book your hotel accommodation before you arrive at your destination.
- ... Watch your health, adhere to vaccination and inoculation regulations.
- ... Relax on the flight—and on the ground. Do not work all the time; personal comfort is important.
- ... Choose your clothes—for business and flying—with care.
- ... Make your briefcase your travelling office.

office if it is arranged with a little care. One way to keep notes in an orderly fashion is to have a system of files with blank foolscap sheets, already headed, for each job in each country. Include such things as pins, clips, blotting paper, addressed envelopes (why bother to write your home address every time when it can all be done in advance?), elastic bands, note books and so on—not forgetting a travelling bottle of ink and pencil refills.

DATES AHEAD

Appointments should always be made before arrival and if you are in Johannesburg for five days, and have some 20 firms to visit, the only thing to do is to have a definite schedule, seeing two in the morning, one for lunch and one or two in the afternoon each day. Otherwise a good percentage of your prospects will only be available at the same time, or some of them will be out of town.

The same rule applies to booking hotel and air accommodation. All reservations should be made before leaving England if possible. To have a complete itinerary booked ensures no delays of any kind. A major air trip can, in fact, take anything up to five or six months to organize really efficiently.

Good planning is an essential

and the first step is to get a rough idea of the towns and countries to be visited, and the number of working days required in each. Then, with the help of an Air Bradshaw, plot timetables of the trip. By this time a definite route will have been worked out and the next step is to visit a travel agent, or one of the major airlines, and get them to check and revise your plan. Put down various alternatives, go away again and match up the available services with the proposed itinerary. Revise it over and over again until you have what you want, and then get it booked. It is best to avoid internal journeys by long distance planes, as these are more subject to delays. Choose airlines carefully, taking care to fly in the types of aircraft you prefer, and remember that a great deal of money can be saved on "through bookings." In fact the final flying schedule should be a work of art, saving time without jeopardizing comfort.

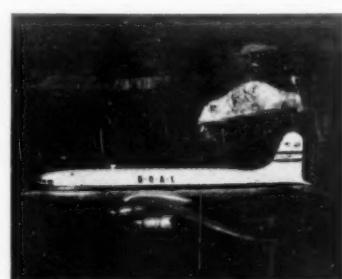
KEEPING IN TOUCH

You will need to keep in touch with your office. A cable when you arrive at each point on your trip is a good way of keeping your office informed of your movements. With air mails so frequent, it is not at all difficult to keep in touch and decisions can always be

confirmed, even though one may be in New Zealand, within a few hours or days. One point to remember is that overseas cable offices frequently shut at 5 o'clock in the afternoon and at week-ends.

A question frequently asked of this kind of business travel is "how much can the businessman absorb of any country when he is in the air so much of the time?" The answer is, very little, of course, but the purpose of such visits is to see a number of people and do certain things with them. To understand Canada necessitates living there, so no trip is of much value in this respect. It is the personal contact which is the valuable part of the trip, and the general awareness obtained of a country and its people. To be able to absorb this in a short time one must have one or two clearly defined objectives for the trip and resist any temptations to be led astray from them. This again involves considerable pre-planning. In fact, the one main lesson is contained in the words "plan carefully and as far in advance as possible." Let it all formulate in your mind for a little while and let it be put on paper once or twice. Then all the details will fall into place and instead of a disorganized hectic dash from country to country, you will have a steady, well-timed trip, with time for everything, although in reality moving with much more speed than the spectacular, but largely ineffective hustler.

Next month **BUSINESS** presents to its readers the facts on owning and running your own aircraft based on the practical experience of a number of well-known firms.



A good deal of money can be saved on "through bookings."

MANAGEMENT AT WORK

In the Picture

MANY a firm remain stagnant simply because their junior executives cannot envisage the prospects open to them. The prospects are there, but information concerning them is not; there is a hiatus in communication. The result is that the extra drive that turns a junior executive into a prospective manager is never forthcoming.

Mr. R. C. Wilson, chairman and managing director of Newforge, Ltd., believes in keeping his juniors in the picture. The current issue of *Contact*, house organ of the Newforge Organization, contains a "Statement of Policy by the Directors of Newforge, Ltd." which outlines top management policy on future developments.

The directors believe that "future development should be on the basis of a diversification of production carried out in small to medium-sized factories." New production units will be established, particularly in Scotland and Eire, "which, in the first instance, will give experience to junior managers, and which later, as these managers acquire experience, and the opportunity for development arises, will be developed into larger units. Pending the introduction of new capital in the course of a few years, development will not be as rapid as it has been in the past, but at the end of this period, with the additional capital introduced and with trained executive personnel available, we hope to extend our activities considerably."

Just how this policy works in practice is described elsewhere in the same issue in a history of the Portadown factory, which has just had its tenth birthday. A handful of trained men were sent to a derelict spot on the outskirts of Portadown to erect a factory. At first they were subject to the guiding hand of the parent concern at Malone. Their leader was a works manager, and they were directly administered from headquarters.

But they were encouraged to take on more and more responsibility; to refer back with decisions.



R. C. Wilson

not for decisions, and the stature of each grew. The chief executives at headquarters willingly ceded their executive control of their respective functions, delegating it to the manager and adopting the rôle of adviser.

Then came the next step. The general manager (for that is what the leader had become) found that he had made himself redundant in the factory. The men he had trained no longer sought his orders, but came to him only for approval of their actions. And so he moved on, leaving a highly trained successor behind, eager and ready to accept the full responsibilities of his appointment.

And as the tenth birthday anniversary of Portadown was being celebrated, another division was being planned. The new unit will be controlled, in the first place, by Portadown, but it will be encouraged to develop its own character and range of products. And in ten years' time it, too, may be producing its own child.

Putting the Story Over

AS a firm grows, more and more management functions are taken over by specialists. It becomes increasingly difficult, even for top management, to get an overall picture of how the organization works, and even more so, of course, for the junior ranks.

The Brush-ABOE group of companies tackles the problem by an annual group management conference. This year's conference, held in a Harrogate hotel, lasted three days, and was attended by 80 members of the group, from managing directors down to foremen.

The conference is conducted on military staff course lines. An exercise devoted to combating "red variances infiltrating into the defensive position of Machine Shop 16" was presented as a military operation order with the time-honoured sub-titles of "Information About Enemy," "Information About Own Troops," "Intention," "Method," "Administration" and "Inter-communication." On the last day syndicates composed of men and women of various grades and occupations had to submit their appreciations of this problem, referring to the various lectures that had been given during the first two days by specialists—accountants, time study engineers, salesmen, etc.

Staff Tribute

THE tribute to the staff's teamwork is accepted as an essential ingredient of the chairman's address to the A.G.M. Mr. H. Garfield Weston, chairman of Allied Bakeries, Ltd., goes further. At the company's meeting, his own address is quite brief, but is followed by more detailed addresses by his regional directors. This is the climax of a deliberate policy of decentralization that runs right down the line. The bakeries in each region are autonomous; so is the biscuit group.

Even within the group, however, each of the five factories, which together employ 3,176 workers, acts independently. How they work was described by Mr. W. P. Van Sickle, regional biscuit director:

"We operate with a minimum of central control. Each factory has a general manager who is responsible to Mr. Weston and myself for operating. They have their own staff working with them and that gives five chances for personal enterprise as against one if we operated the group as one unit. The company, in this way, has also five chances to one of making a good buy on a particular material.

a new biscuit, improved production method, etc.

"The production manager can see the results of five different factories, picking the best of all matters pertaining to production from each factory and installing them, where possible, in the other factories.

"The biscuit sales force operates in seven divisions with a sales manager in charge in each division responsible to the general sales manager. In this way the general sales manager has the knowledge and experience of seven men working with him.

"Advertising is, of course, on a national basis and covers press and periodical advertising, showcards, sign posters, window displays and shop demonstrations, etc., and just to prove they are salesmen and not just order takers our sales force sell advertising in the shape of paper bags sold to and used by their customers."

First Aid for All

MASSEY-HARRIS, Ltd., of Manchester, believe in safety. All their 16 lorries and vans are fitted with first-aid equipment, and all drivers have undergone a course in first aid. More intensive instruction will be given later.

But the firm do not stop there. A red cross and the words, "This vehicle is equipped with first aid for public use," are painted on the bonnets and tails of the lorries, and several letters have already been received from police and doctors following accidents in which the firm's drivers have been able to help. Expense to the firm has been negligible, but the result has added to prestige.

What it Costs

HOW much does research really cost—net? Mr. Harold Vagtborg, American delegate to the recent International Symposium on Scientific and Industrial Research in London, suggested that one unit of research requires ten units for development and a hundred units for successful commercial mass acceptance of a new product or process. Thus progressive managements in the U.S.A. are always looking for new yardsticks by which to measure—in number values—the economic return on

research investment. Some companies make it a practice to subject major research undertakings to a preview before budget approval, in order to estimate not merely the immediate cost of the research, but the final cost of developing a product from it. "If you are not willing to go the 1-10-100 route, don't start the project," suggested Mr. Vagtborg.

Taking on Interest

AN unusual way of encouraging apprentices to take a more intelligent interest in their work has recently been introduced by the Furniture Development Council. Learners in the furniture industry will be provided with an album entitled *You and Your Industry* in which, by pasting illustrations beside appropriate passages of text, they can produce for themselves an illustrated description of the way their industry works. Empty spaces are left in the story which apprentices must complete in their own words with a description of their particular part in the industry. By the time the album is complete it will contain a detailed account both of the furniture industry generally and of the compiler's place in it.

In a foreword to the album the Furniture Development Council state their belief that "whether you sweep the factory floor or add up the factory accounts, whether you are a cabinet-maker, upholsterer, polisher, engineer or typist,

you will increase your well-being and happiness and do your own job better if you know something of the furniture industry, its past, its present and its future."

Rules for Reports

TWELVE basic rules to be observed when making reports—of any type—to top management have been laid down by Mr. W. F. Edwards, director and treasurer of General Motors, Ltd. They are:

(1) Make only reports having a definite purpose, worthy of management consideration.

(2) Include only such facts and statistics as will aid in reaching a clear understanding of the problem.

(3) Be judicial—include pertinent facts on all sides of the problem.

(4) Present the facts in logical order.

(5) Explain each point well, but concisely—avoid professional lingo and abstract verbiage.

(6) Use simple words which carry out your exact meaning.

(7) Use short sentences.

(8) Never compare percentages calculated on different bases, unless clearly explained.

(9) Interpret the findings clearly and correctly.

(10) Summarize briefly.

(11) Make specific recommendations.

(12) Remember always that management has time only for terse, meaningful reports.

What is a Salesman?

Opening a two week training course for younger sales staff, Lieut.-Col. Maurice W. Batchelor, chairman of Batchelors Peas, Ltd., defined a salesman as 30 per cent. personality, 20 per cent. salesmanship and 50 per cent. enthusiasm. The course is the first of a series to be held throughout the year.

Practical demonstrations of selling methods are carried out in a fully stocked dummy shop—complete with plate glass window. A senior salesman takes the part of the shopkeeper. The aim of the course is not to standardize sales methods, but to encourage salesmen to think for themselves and broaden their outlook.





He Sold the Ball-Point Pen to the World

By A. K. ASTBURY

Seven years ago there were no mass-produced ball-point pens. To-day Biro Pens, Ltd., are selling pens at the rate of seven million, plus 19 million refills, a year. Yet chairman and managing director Richard Coit had decided to retire when he formed the company and started this new enterprise. Now, it is world famous and has recently acquired controlling interest in Mabie Todd, Ltd., pioneers in the manufacture of the conventional fountain pen.

SEVEN years ago the ball-point pen, greatest revolution in writing since the invention of the fountain pen, was unknown. Today, in many world markets, it has almost superseded the fountain pen in popular use. It is, therefore, of almost historic significance that the company which pioneered this new writing technique—Biro Pens, Ltd.—should now have acquired a controlling interest in the long-established firm of Mabie Todd, Ltd., makers of *Swan* and *Blackbird* pens, and themselves pioneers in the manufacture of the fountain pen. Biro Swan, Ltd., as the new company will be called, will be a living testimonial to the business acumen of its managing director and chairman, Richard Coit, who seven years ago founded the original company on a capital of £100, and then, between October 1st, 1950, and September 30th, 1951, sold throughout the world seven million Biro pens and nearly 19 million Biro refills.

Mr. Coit is not a young man. Before he was shown the world's

first ball-point pen in a London club in 1944 he had already had a long and varied business career in many parts of the world; had, indeed, already decided to retire, when his plans were upset by the outbreak of war. Thus the crowning achievement of his career, the building up of a world-wide ball-point pen service, and the recent acquisition of one of the oldest companies manufacturing fountain pens and propelling pencils, has been done at a time when many men are in retirement.

Not that Mr. Coit gives any other impression on first meeting than that of power, power of mind and personality; even, too, of physical strength. One senses that he could act without sentiment; what is equally certain is that he could not be petty; and it is common knowledge among his subordinates that he is a man of some generosity, a generosity not confined to the unusually high bonuses he pays his office staff. He has a certain Churchillian manner of speech, the more effective since unaffected; and cour-

A machine for turning the tapered nozzle on a Biro Minor ball-point pen.

teous, even diffident in manner, he could, perhaps, be suspected of coldness were it not so plain that, unlike many men in such a position, he does not wear his heart on his sleeve.

No great financial reserves went to build up the company which will now become Biro Swan, Ltd. Biro pens (called after their Hungarian inventor) were first manufactured by a sub-contractor; distribution—since, for one reason, the pens are so easily transportable—was not expensive, and profits from early sales were ploughed back. The pens (they do not leak at great heights, nor does their ink with its castor oil base freeze at low temperatures) were first used by the R.A.F.; this fact alone had some publicity value, and after the war their sale was backed by astute advertising, in which Mr. Coit took a personal and effective interest. Export of the pens, too, was helped considerably by Mr. Coit's knowledge of foreign markets and his contacts with foreign businessmen and agents. He, or one of the members of his staff, has had personal contact with each of the company's 47 agents in 83 countries, and in the last three years export business has doubled and now runs at the rate of £500,000 a year. In Australia alone over the last four years Biro pens have been sold, in aggregate, to each man, woman and child in the Dominion. The pens even sell well in Korea through NAAFI stores, in spite of a complete absence of advertising; American and Commonwealth troops, as well as British troops, are probably responsible for the demand.

He Almost Retired

Mr. Coit, who directs the destinies of his new company from a wooden-panelled office in an eighteenth century house in Mayfair, London, was born in London 64 years ago, and was educated at Winchester and King's College, Cambridge. He then lived for some years in France, where he represented a number of English banking interests. During the first World War he was engaged



on behalf of the British Government on contracts in connection with nitrates in Chile and elsewhere; the years immediately after the war he spent in the export and import business in Brazil.

In 1922 he returned to England and became a member of the Stock Exchange and a partner in the firm of Schwab and Snelling—now known as Thompson-Schwab and Company. He retired from the Stock Exchange in 1937, and it was his intention to enjoy himself "following the sun." But the outbreak of the second World War upset his plans, and he went once more into Government service; for the greater part of the war he was in the United States on Foreign Office business.

"When I was in the States," Mr. Coit said (and here, since his story begins to touch on the matter of Biro pens, it is as well that he tells the story in his own words): "I had occasion to go for a trip to South America. There, in Buenos Aires, I met Mr. Henry George Martin, a British businessman and accountant, who had been living in Buenos Aires for many years, and was instrumental in arranging the financing for its Hungarian inventor, Mr. L. Biro, of the *Biro* ball-point pen."

The scene then shifted to London. "In 1944," Mr. Coit continued, "I was back in London, and Martin rang me up, asked me to meet him at his club, and said he had something rather interesting to show me. That something was the world's first ball-point pen. I asked him what he meant to do with it. 'I'm going to get a factory, and make it and sell it,' was his reply.

"This conversation took place in the Argentine Club on the day the first flying bomb fell on London.

I told Martin, of course, that he was quite out of touch with conditions in Britain; that he would not be allowed to have a factory; that he would be given no labour, no raw materials, and no permission to form a company with more than £100 capital. Otherwise, he would probably be very lucky.

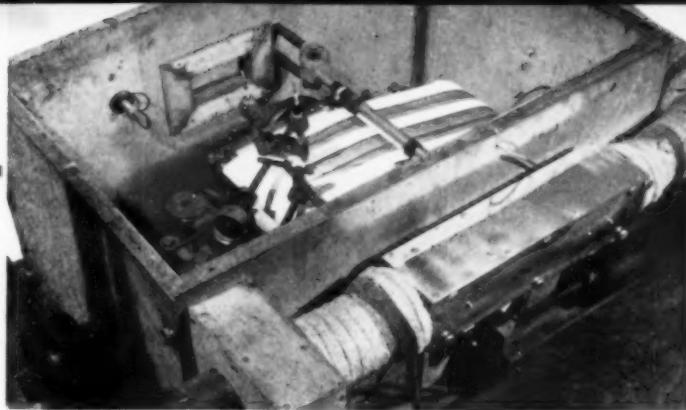
A Pen for the R.A.F.

"He asked my advice. 'You tell me that this pen does not leak in the air, and that the R.A.F. want it,' I replied. 'Get an aircraft manufacturer to make it for the Air Force and be toolled up ready for civilian production when the war comes to an end.' He asked me whether I knew an aircraft manufacturer. I happened to know Miles, whom I considered to be full of ideas and very go-ahead, and we got him down one Thursday; by Saturday Miles had produced the first factory-made ball-point pen.

"We then formed a small company, called the Miles Martin Pen Company, which gave the making of the pens and refills to Miles Aircraft by way of sub-contract. The war came to an end and we started selling. Then, at the end of 1947, we were faced with the receivership and reconstruction of Miles Aircraft. Apart from the fact that the Miles Aircraft Company had the actual job of making our pens for us, their business affairs had nothing to do with Biro pens. The only effective link between the two companies (except that of manufacturer and client) was the personal one: that Mr. Miles was at that time chairman of both companies.

"The Miles Martin Pen Company, as it was then called, made an arrangement with the Receiver of

Equipment for testing refills capable of reproducing Arctic temperatures or equatorial heat.



Miles Aircraft to form, for a period of five years, a company called the Biro Pen Manufacturing Company, in which the Miles Martin Pen Company and the Western Manufacturing Estates, Ltd. (successors to Miles Aircraft), held equal shares. And that company is still making all Biro products as a sub-contractor from Biro Pens, Ltd.

"This contract comes to an end in 1953, and, faced with the desirability of finding premises of their own, Biro Pens, Ltd., recently made an offer to the shareholders of Mabie Todd, Ltd., manufacturers of *Swan* and *Blackbird* pens, *Fynepoint* pencils, and *Swan* ink, that Biro should acquire all that company's shares. Over 97 per cent. of the shareholders accepted the offer, and the acquisition of Mabie Todd has now gone through.

"As far as Biro Pens are concerned, these events have led to no reconstruction, save that about a year ago Mr. Miles sold his shares and retired from the board of the Miles Martin Pen Company; I, who had been managing director since the company was founded, took on the chairmanship as well. The name, too, was changed from the Miles Martin Pen Company to Biro Pens, Ltd. It is now intended to

telescope the Swan business into the Biro business, and to have one company trading under the name of Biro Swan, Ltd. It may give some idea of the relative importance of each company to know that, of the export turnover of the two companies, which has been running at the rate of £750,000 a year, Biro Pens have been responsible for some £430,000."

But during Mr. Coit's period as managing director, and later chairman, expansion has taken place, not only in the worldwide selling of ball-point pens, but in other directions as well. Biro Pens, Ltd., now have an industrial division, and a separate factory owned by the company between Reading and Newbury is at present making small parts for the aircraft industry. "We have 45 automatics there, turning out some two million small parts a week," said Mr. Coit. "In addition, we manufacture artificial jewellery by a special Swiss anodising process through a 92½ per cent. owned subsidiary known as Oxal (England), Ltd. We have, too, a 76 per cent. owned subsidiary known as Micromere, Ltd., which makes 1 millimetre steel balls for our ball-point pens."

I tried to draw out Mr. Coit on his business philosophy. I had already gained the impression that he was a man concerned more with hard facts than even such passing speculations on business methods and practice in which even the most hard-headed of industrialists engage from time to time. He believes, he told me, in a philosophy of service; yet here again it is a question, as he soon explained, of hard facts and experience. "I believe that service is the fundamental thing in business, and I have always concen-

trated rather on servicing the pens we have sold than on selling new ones. Although I would not have you assume that we neglect that side of our business. . . . But in advertising our pens we do draw attention to the fact that we offer a world-wide service, and that I do regard as fundamental. Our business, you see, is something of the nature of the razor and the blade. If we sell a ball-point pen and make a satisfied customer, we have an indefinite life for the sale of refills. And that is our real aim, to try and get satisfied customers all over the world. And since our profits run in the neighbourhood of a quarter of a million pounds a year, you may judge for yourself whether we have succeeded or not."

Trust is Vital

He paused for a moment. "And yet there is one way in which I may be said to have a business philosophy, or perhaps, a business intuition," he added. "I have no yardstick for choosing men, except, perhaps, that it is vital that I should be able to trust them. And in assessing their reliability I have a simple test. I just imagine that we are cutting cards at each end of a telephone wire for £1,000—and that it's the other man who's cutting. And then I decide whether or not I would take his word for the card he has turned up. I have no one here who would not pass that test."

Mr. Coit, as may be imagined, gives a good deal of responsibility to his chief executives. "I settle matters of policy, but within that policy I allow very considerable latitude. And running my business, I want all the help I can get from anyone. I believe that people

continued on page 95

Coit Quotes

"I believe that service is the fundamental thing in business . . ."

* * *

"I have no yardstick for choosing men, except, perhaps, that it is vital that I should be able to trust them"

* * *

"I settle matters of policy, but within that policy I allow very considerable latitude"

* * *

"I am a great believer in profit sharing. Everybody, every firm, ought to do something on the same lines"

This Equipment Answers Your Telephone

By ROBERT SPARK

Amazing, ingenious, flexible: all these adjectives—and many others—can be used to describe the Ipsophone. Now available to British businessmen, it answers your telephone, tells you the messages it has received and enables you to dictate to your office at any time and from a public telephone anywhere in the world.

BRANCH offices without staff are more than a possibility now; in fact, one British firm is already investigating such a development. This is only one use for an amazing piece of equipment called the *Ipsophone*. It is no new invention, as it was developed in Switzerland some years ago; but it is new to Britain and only very recently was approval obtained from the G.P.O. for its use.

Basically, the *Ipsophone* answers your telephone calls when you are either too busy or away from the office. Although this is sufficiently revolutionary to be a boon to many business executives, it is only a part of the services carried out by this remarkable appliance.

This is how it operates. If you are absent from your office the telephone rings four times, after

which the automatic apparatus comes into use. A voice gives the telephone number, the company's name, and says "Your message will be recorded. . . . Wait. . . . Please speak now." The caller then gives his message and rings off. Each subsequent call will be conscientiously recorded in the same way.

When the owner of the telephone returns he lifts the receiver, presses a button marked "Playback," and all the incoming messages will be played back—with no long gaps in between them, as the recording wire is only "on the move" when someone is speaking. If you miss a few words of one of the messages you press the button marked "Repeat," and immediately the *Ipsophone* repeats the last phrase. Once all the recordings have been heard, and providing they are not required any more,

the whole lot will be erased on pressing another button marked "Cancel."

This is useful enough to make it attractive to the executive, but it is only half the story. While the *Ipsophone* is busily recording incoming calls, its owner may, for instance, have flown to Paris on a business visit. But he can still find out who has been 'phoning him.

Before leaving the office you set a code. On the upper part of the instrument is a keyboard with ten buttons, numbered one to nine and zero. You pick several numbers—for example, two, six and nine—and press the respective buttons. This code is locked into the machine, after which you withdraw the key. When you 'phone from Paris (or anywhere else where there is a telephone) con-



nection is made to your telephone, and, as usual, the voice of the *Ipsophone* answers with your name and address. But on the "Wait," you call "Hello, hello," sharply, and this signal alerts the reproducing equipment.

After a brief pause the voice of the machine will slowly call out the numbers one to nine and zero. After each number in your code (i.e., 2, 6 and 9) you call again, "Hello, hello." Having satisfied the *Ipsophone*, all the messages received in your absence will be repeated to you. If you make a mistake, the procedure is repeated again—but if you still make an error, then the machine assumes you have no right to the information it is holding and cuts the line automatically.

Long Range Dictation

What else can the machine do? There are still other tricks up its sleeve—if such a metaphor can be applied to a piece of equipment. For instance, when you have heard all your messages while you sit in your Paris hotel, you only have to wait a few seconds after the last one and the machine emits a single tone (like the engaged signal of a normal telephone). On hearing this, you say "Hello, hello," and you can then dictate instructions for your staff to carry out in your absence. Alternatively, you can make the machine erase all the messages you have heard by saying "Cancel, cancel."

Below, the *Ipsophone* unit takes up only a little more space than the G.P.O. telephone.



Still the capabilities of the *Ipsophone* are not exhausted. When you are talking on the telephone in your office you can record all or any part of both sides of the conversation by pressing the "record" button. You can also use it as a straightforward dictating machine, with the added advantage that if you are interrupted or at a loss for words there are no long gaps on the final recording. If the machine hears nothing for ten seconds, it cuts itself off, rewinds until it picks up the last word spoken, and there remains until you speak again.

Not only can the machine be useful for the executive to find out who has been 'phoning in his ab-

sence, but it can be used by the firm's customers for sending in orders and for travellers to 'phone in reports. They can do all this after office hours (during the cheap telephone rate period, for example), on Sundays, or at any time of the day or night.

One application, for example, is a brewery. If a public-house has a very heavy sale of a particular beer one evening, the landlord can telephone an urgent order after closing time and the *Ipsophone* will record it, ready for when the staff arrive next day.

An alternative arrangement is to install *Ipsophones* in principal provincial cities. Clients in each area are told about the "branch without staff." They put a local call through to the machine and place their order, make an enquiry—or even register a complaint. Periodically—once or twice a day—the head office in London can telephone the *Ipsophone* and get it to repeat all its messages—and it cannot make a mistake.

The telephone instrument is not much bigger than a standard instrument. All the recording equipment is contained in a cabinet about the size of a small domestic refrigerator, which is almost silent in operation. An auxiliary instrument is available for use by a secretary. All the *Ipsophone* equipment is at present manufactured in Switzerland, but it is hoped eventually to produce it in Britain. It is only available on a rental basis.



Above, the completely enclosed cabinet housing the mechanism is about the size of a small refrigerator.

Below, the auxiliary unit for use by a secretary extends the flexibility of the equipment.



MEN OF VISION

He Serves 25% of Britain's Butchers

EVERY year enormous quantities of fresh frozen foods are wasted because of the poor methods of distribution. Many years ago the problem of hygienic distribution of fresh frozen meats seemed insoluble, but quite recently John Connell (Bromley), Ltd., launched the first of a fleet of 10-ton articulated mobile cold stores, called the "Arctic Princess," which was featured and illustrated in BUSINESS last month. This is claimed to be the vehicle of the future, and may well become the standard equipment of the distributive meat trade. Such achievement is typical of Mr. John Connell, the managing director.

John Connell started his business career in 1927 as a builder's clerk, and, having a head for figures, soon rose to become the accountant's assistant. Recognizing that prospects of further promotion were remote, he made a systematic study of progressive trades. After analyzing the information that he obtained, he decided that meat offered most favourable opportunities. In 1929 he approached a leading wholesale meat salesman, but found that the trade was virtually a closed shop with thousands of applicants on the waiting list. Nothing daunted, he asked if he could contact any customers which the firm had recently failed to serve. Permission having been granted, he proceeded to build up a small connection, and after nine months he again approached the trade and obtained employment with a Mr. Gunner, who had a chain of 50 shops and four wholesale stalls in Smithfield.

In 1933 Connell left Mr. Gunner and started with Messrs. A. H. Carman, of Smithfield Market, and three years later he took over part of Messrs. Hayes and Paine's shop in Smithfield Market. In 1939 he left the Market and hired depots in Bromley and Croydon, and a slaughter-house in Bromley, until meat became rationed in 1940. Knowing that there was a large market for unrationed commodities, he started with poultry, rabbits and canned meats, and be-

gan once again to build up sound business contacts.

After five years in the supply branch of the Navy he resumed business again in 1946 and, with the help of his gratuity, built his firm into a national organization serving 25 per cent. of Britain's butchers. Still only in his fortieth year, Connell is today managing director and 80 per cent. shareholder of a company whose turnover has grown from £50,000 a year to £1½ million a year, with the £2 million mark not far ahead. Nearly 100 different unrationed meat and grocery lines are distributed to 3,000 retail customers, ranging from one-man businesses to large multiples and co-ops.

How is such an organization built? A clear-sighted, long-term policy is, of course, essential, and from the very beginning John Connell accumulated around him the best brains obtainable. Each a specialist in his own particular field—each working within the framework of a few sound, well-defined principles. These principles were:

- (1) value for money;
- (2) continuous service;
- (3) unlimited effort;
- (4) maximum care and hygiene throughout handling.

To implement these principles, depots and cold stores are being established in various parts of the country, and the fleet of mobile cold stores is also in the process of being built up.

Receptive to Ideas

To keep in the vanguard of progress it is necessary to be in close touch with new developments and ideas throughout the world. The company has information coming in constantly from practically every country of importance to the trade. New ideas are readily adopted if they are considered beneficial to either the company or its customers. Realizing that butchers are having a difficult time, Connell is importing a variety of meat lines from all parts of the Empire, and (until



JOHN CONNELL

prevented by Government restrictions) from the Continent. The company's production expert, Mr. Andrew Wrigley, has recently gone out to South Africa, where he has established an office to negotiate supplies of canned meats and vegetables.

John Connell has a capacity for thinking ahead—working on the principle that there are no limiting factors to expansion, save the financial one. "Ideas," he says, "need financial support to bring them to maturity, and investors are realizing that a progressive organization like ours is as good as a gilt-edge security."

The ultimate aim—when circumstances permit—is to distribute the finest quality goods from all over the world to consumers all over the world, and so build up a vast international organization. Connell believes that if Empire packers studied the latest Continental and American methods of canning and fresh-freezing, they could supply goods equal to any similar products in the world. Sales resistance to new lines has been encountered, but is being overcome by the free issue of a Sales Efficiency Course at the National School of Salesmanship. This is a special course based on the company's own knowledge and on the personal experiences of butchers it has trained.

No. 2 Man at Standard Motors at 35

BECAUSE of its progressive outlook and the pace at which expansion and development have taken place, the motor industry has offered exceptional opportunities for men of ability and ambition. Despite these favourable circumstances, however, it is remarkable that the Deputy Managing Director of the Standard Motor Co., Ltd., should be only 35. Mr. A. S. Dick is probably the youngest man in Britain to hold such a responsible office in any comparable organization. His achievement is enhanced by the fact that he served his apprenticeship and gained all his experience with the company of which he is now second in command.

Born in 1916, Dick went to boarding school before he was six. He had an unusual education, spending two years at a public school and two years at a secondary school. He considers that this has been very valuable, since it accustomed him at an early age to mix with people of every type. After leaving school he spent a year in London and took an engineering course at the British School of Motoring. At that time he had no particular career in view, but was interested in motor cars. In 1934 his father brought him to Coventry with the intention of apprenticing him to any one of three large concerns, and, through an uncle, he was introduced to Captain (now Sir John) Black, who arranged for him to start the following week with the Standard Motor Company.

Rapid Promotion

Dick spent about two years in the works, mainly in the press tool room. As a result of the reorganization of the company by Sir John Black, there were a number of positions to be filled on the administration side. He was given the option of continuing his apprenticeship training in an administrative department, and was moved to Materials Control. At the end of 1936, still on Materials Control he was transferred to the first shadow factory to be erected. As the new venture began to grow he was placed in charge of the buying department, and, under one of the managers, became respon-

sible for all buying and materials control. At that time he was 19½ years old. Two further shadow factories were erected, and Dick's responsibilities were extended to cover all three establishments. Soon afterwards he was appointed Production Control Engineer, in which capacity he was in charge of all stores, buying and control of raw materials in and through the factory. In 1944 he was transferred to the Canley works and placed in charge of all production control on Mosquito aircraft.

Shortly after the war Sir John Black invited Dick to become his personal assistant, an appointment which the young man accepted with some diffidence. In this capacity he served Sir John throughout the company's reorganization to peace production, during the negotiations which led to the manufacture of Ferguson tractors, and at the start of production of Vanguard cars. In 1949 he was appointed to the Board as Assistant Managing Director, and he became Deputy Managing Director in June last year.

Many Opportunities

Dick emphasizes his good fortune in having been associated with the company during a period of phenomenal expansion, when many opportunities came his way. He undoubtedly benefited from the fact that he never remained in any one department for very long, so that his experience has been very wide. He attributes his success largely to the encouragement and assistance he has unfailingly received from his chief, Sir John Black. Likes to have young people round him, and so long as they do their jobs and avoid making the same mistakes twice he will give them all the help he can. This in itself tends to foster the self-confidence which is necessary when dealing with much older people. Dick has always endeavoured to persuade people and get them to understand his point of view, rather than to tell them what to do.

According to one of his colleagues on the Board, Dick was given his opportunity primarily because of his ability, and because, also, Sir John's inclination after



A. S. DICK

the war was to have a young team. In particular, Sir John was looking for a young man who could be trained to understand his requirements and interpret his policy. Approachable and with an unassuming manner, he appears, at first sight, to be much older than his years. He is described by his colleagues as a very level-headed young man with a clear brain, capable of absorbing matters of consequence quickly, never panicking and never giving a hurried decision.

The turnover of the Standard Motor Co. has grown in a few years from five million to forty-seven million pounds a year, and the floor area of the works from a half-million to 2½ million square feet. The company now employs nearly 12,000 workers in Britain, and has eleven overseas assembly plants. This expansion has necessitated tremendous changes in management policy. One of the difficulties of modern industry, Dick recently told apprentices, is that specialization has become essential, but in order to reach the top it is necessary to have a wide foundation of experience. The company is, therefore, establishing a training course for supervisors and foremen, from whom future managers will be recruited, the aim being to broaden their knowledge of all departments. Dick encourages executives to delegate duties, and not attempt to handle all details themselves; they will not harm themselves by adopting such a policy.

NAME: Brown, A.D.		GRADE: Sgt		SCHOOL NO: 331	
DESCRIPTION OF PART: HOLD HERE DONT USE FORCE THIS SIDE FORWARD		ITEM NUMBER: 130138		DATE ISSUED: 22.10.51	
MANUFACTURER: STANAGRA		MATERIAL SPEC. & DESCRIPTION: MAG. ALLOY, HED. 156, no. BACK 47. PR (30857). PT.		QUANTITY ISSUED: 36	
MANUFACTURE DATE: 9-4		VALIDITY PERIOD: 12/10/51 - 1/10/52		ISSUE TIME: 10:55 AM	
ITEM NUMBER: 130138		ITEM NUMBER: 130138		REASON FOR ISSUE: REPLACES 130137 (2 sheets).	
EXPIRATION DATE: 28		EXPIRATION DATE: 28		RADIAL TILT: 120°/9 - 130°/9	
TIME ISSUED: 10:55 AM		TIME ISSUED: 10:55 AM		SPLIT RATE: 45 min	
ISSUE NUMBER: 58		ISSUE NUMBER: 58		RATE BASIS: HR	
ISSUE NUMBER: 58		ISSUE NUMBER: 58		TOTAL TIME: 36	
ISSUE NUMBER: 58		ISSUE NUMBER: 58		TOTAL: 19.0	

**Left, typical job
card. Below, a
pre-printed pay
card.**

This Payroll System is Fast and Informative

By HAMISH ROBERTSON

FACTS are the raw material of administration and they should be used over and over again for different purposes. The Bristol Aeroplane Co., Ltd., had this principle very much in mind when they reviewed all existing procedures some ten years ago, and they had full regard at the same time to the need for limiting staff requirements to a minimum.

Special attention was given to payroll preparation, as it was clear that from the details necessary for its completion there could be obtained a great deal of information of considerable value to company management. To get the maximum benefit from such information it had to be made available quickly, and the plans, therefore, aimed at producing a payroll as soon as possible after the end of the working week.

The methods used, which were introduced by Mr. H. A. Simpson, who was then cost controller of the company, are worth close examination, as they met with immediate success and have culmi-

nated in the present position whereby the payroll is now completed within five hours of the close of the working week.

Wage Rates

The company's wage rates are covered by national agreements and involve consolidated rates, piece rates, piece-workers' supplements, ability and compensatory rates, and bonus payments. Each direct worker averages as many as ten individual jobs each week, so that it will be seen that the task of wage calculation is a formidable one.

Contrast between Old and New Methods

Under the old method the detailed wage rates, together with weekly deductions, were kept in hand-posted ledgers, which were referred to each week when the payroll was being compiled. Workers clocked attendance cards, as well as job cards, and the time-keeper's job finished when he



The system used by the Bristol Aeroplane Co., Ltd., in compiling their payroll, ensures its completion within five hours of the closing of the working week. Facts and figures are the by-product of this payroll, and its speedy preparation ensures that management obtains maximum benefit from a workaday task.

agreed that the hours on the attendance card balanced with those on the job card. When the cards came into the wages department, clerks calculated premium hours, copied rates and deductions from the ledger record, and referred to the job cards to decide what extra payments were needed and to ascertain the total bonus due. The volume of calculations resulting from the use of this method made it necessary for the calculating department to concentrate on completing pay cards, leaving the costing of job cards to be dealt with after the payroll had been completed.

In contrast, the present method has five main features:—

(1) All clerical work is reduced to a minimum, firstly, by making the maximum use of em-

bossed plates, which embody all the information necessary for the preparation of pay cards, payrolls and pay envelopes; and secondly, by the use of job cards previously prepared at the same time as the manufacturing process instruction sheets from hectographic masters, and which are pre-punched for needle sorting.

(2) The involved wage rates (to which reference has been made above) are converted to hourly rates, which are printed in shillings to three decimal places beneath the appropriate column on the pay card. The simplicity of calculating by this method is a great time-saving factor in the calculating department.

(3) The amount of work to be done after the close of the working week is reduced to a minimum. For instance, completed job cards are extended for wage and bonus each day, and consequently at least four-fifths of the job cards have already been calculated by the end of the week.

(4) It is assumed on Friday morning (the last day of the working week) that all non-producers present at the start of the day will work a full day. This enables all non-productive departments to be completed by the works' timekeepers and sent to the calculating department, with the result that wage cards and payrolls for all these employees can be completed before they have actually completed their week's work. (In the exceptional circumstances of any of the employees concerned failing to complete a full day's work, the necessary adjustment is made in the following week.)

(5) All sections connected in any way with payroll procedure are integrated; a strict adherence to programmed times is insisted on; the staff concerned are carefully trained in their respective duties, and appreciate the importance underlying both accurate working and an early completion of the payroll.

Details of Present Procedure

The essence of the scheme is timing. Nothing is done on Friday or Monday that could be completed at some other time outside the payroll period.

The procedure works as follows: a new arrival at the factory completes an application form, which

after allocation of a clock number by his time-keeper, furnishes sufficient information to complete an embossed plate.

Printing Arrangements

The details shown on the plate for which the rates control section of the wages department is responsible, are as follows:—

Embossed Detail				Purpose for which it is used
Line 1. Address				Labour record.
Line 3. Hourly rates				Wage card and rates control record.
Line 4. Date of birth				Labour record, rates control record, retirement benefit and life assurance purposes.
Date of engagement				Labour record, rates control record, retirement benefit and life assurance and income tax purposes.
Occupational code				Labour record.
Weekly free pay				Wage card.
Line 5. Rate				Labour record, rates control record, wage card, holiday pay and time record card.
Line 6. Department number				All records.
Tax code number				Rates control record, wage card and income tax purposes.
Line 7. Clock number				All records, wage cards, clocking cards, pay envelopes and payroll.
Name and initials				Payroll.
Employers' insurance				National Insurance Schedule stamping.
Liability				
Line 8. National Insurance No.				
Line 9. Overall deduction				Payroll, wage card, labour dept. record.
Employees' National Insurance contribution				Payroll, wage card.
Post Office direct savings				Payroll, wage card, Post Office Savings returns.
Welfare				Payroll, wage card, welfare records.
Total deductions				Payroll, wage card.
Weekly Free Pay (i.e., non-taxable)				Payroll.

The plate for each new engagement is inserted in its correct departmental and clock number order in the plate cabinet, and is ready for future use for the production of pay cards, payroll, or any other information which may be required. Of necessity, a strict control on transfers, engagements, discharges and alterations is maintained, fixed times being observed for their notification to the plate embossing section.

It is interesting to note that two machines with a double listing device print a payroll at a rate of 2,000 employees per hour, and, using an automatic feed mechanism, pay cards can be printed at the rate of 100 per minute.

In the shops themselves each separate task is covered by a job card, which also acts as an attendance card. The issue of job cards and their equivalent control slips

is the responsibility of the shop production control office. The cards, as already stated, have been prepared in advance from a hectograph master. At the appropriate time for issue of work to a section, the control slips are sent to the section chargehand, and the job cards to the timekeeper. The chargehand retains the slips in racks provided for the purpose.

Apart from being available to the operator to clock on for attendance purposes at the beginning of each shift, these job cards are retained in the works' time office. An operator is "clocked" off a completed job and on to a new one in accordance with instructions received by means of pneumatic tube from the shop chargehand. The chargehands use the control slips to convey these instructions, which indicate not only the completed and the new job numbers, but also the quantity of components for which bonus should be paid on the completed job.

Calculating Arrangements and Current Week's P.A.Y.E.

The timekeeper extends the finished job card according to the time taken on the job, and then calculates the time allowed and

the bonus gain or loss. The operator's pay card is entered with the hours worked each day, and where overtime has been worked the appropriate overtime premium hours are shown. Other information recorded on the pay card includes the operation number and sequence number of completed jobs.

At regular intervals all completed job cards are sent to the wages department, where the calculating section compute the wages and bonus, the timekeeper having already entered the appropriate hourly rate on the job card from the wage card. Cards are then returned to the time office and filed behind the man's pay card. Pre-calculation of job cards continues until about 2 p.m. on Friday.

By the time the last job card is available on Friday afternoon, the timekeepers have totalled the pay cards for lost time, hours worked, overtime premium hours and waiting time. In the meantime, by the use of the embossed plates, a payroll in departmental and clock number order has already been prepared, complete in all particulars, with the exception of the gross wage, income tax paid, and net wage for the week. This payroll is retained by the listing section until the wage card calculations have been completed. Having received a duplicate copy of the payroll, the timekeepers are enabled to submit the wages and job cards to the calculating pool in strict payroll order. This duplicate



Using an automatic feed mechanism, the machine shown in the picture can print pay cards at the rate of 100 per minute

list has previously been used to notify the wages department of any absentees for whom no deductions should be made. This enables the fixed deductions for the week to be totalled and balanced prior to the commencement of the main work of the payroll, leaving only gross wage, tax and net wage to be listed and balanced.

On receiving the cards from the timekeepers the calculating machine operators proceed to calculate each employee's wages for the week. This is done by:

(1) Extending the master pay card by multiplying the hours

worked, overtime premium hours, etc., by the decimalized wage rates printed on each card.

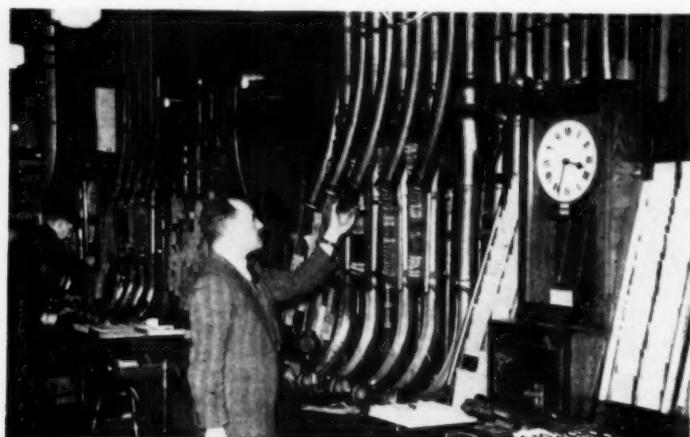
(2) Extending the remaining job cards (the majority having been pre-extended).

(3) Adding the job cards and balancing them with the gross wages already calculated on the master pay card, thereby eliminating calculation errors without the necessity of checking individual calculations.

Calculating Tax

The calculating machine operators then subtract the fixed deductions from the gross wage. They also accumulate the amount taxable to date by taking the brought forward amount taxable, plus the week's taxable wage, and deduct the weekly free pay. When the calculating machine operator has completed a department, the pay cards are separated from the job cards in order that the job cards may go to the sorting section, and the pay cards to the rates control section for calculation of tax due and net wage. The pay cards are then sent to the listing machine section, where the payroll already in their possession is completed by inserting in the payroll for each man the gross wage, income tax paid, and net wage for the week.

Pay cards and payroll then return to the calculating machine section, who cross-balance the payroll, agree the tax position with tax control accounts, which are



The shop control office, showing pneumatic tubes for receipt and dispatch of job control slips.

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maintained for each department, and segregate cash and National Insurance. All these particulars are shown on detachable slips at the foot of each payroll, which are later "hung" in backing sheets by the listing section in appropriate order to give totals for each department and for the works as a whole.

The detailed cash analysis, payrolls and pay envelopes are sent in convenient groups to the pay station for making up the pay packets.

Expense Analysis

Meanwhile, the job cards—which have already been passed to the sorting section—have been sorted by needle into expense and manufacturing order numbers, but they remain, for the time being, in departmental order. A trainee section of the calculating machine pool total the cards for each expense and order number, and enter their results on individual cost slips. The grand total of the slips is agreed with the departmental cost totals provided by the listing section. This operation, in addition to providing an analysis of

Calculators work out wages. Simple jobs are done by trainees.



departmental labour costs, gives an added check on the accuracy of wage and job card calculations. After this balance has been achieved departmental identity is no longer necessary, and a complete sorting of cards and slips is made before they are passed to the job cost section.

Following Week's P.A.Y.E.

The wage cards, now that the payroll has been completed, are returned to the works' time-keepers, who transfer the tax details to the following week's card already in their possession. They

then distribute the cards to each employee, giving ample time for any queries to be raised and settled before the wages are actually paid.

It might be noted that the tax entries referred to are totalled and agreed with departmental controls in order to avoid any possibility of error and consequent loss of time during the compilation of the next week's payroll.

Wages Make-up

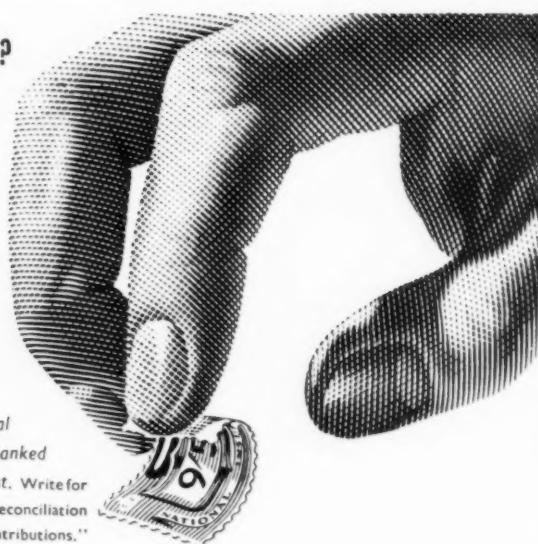
The actual make-up of wages itself is carried out by a minimum number of clerks, each of whom receives from the wages cashier

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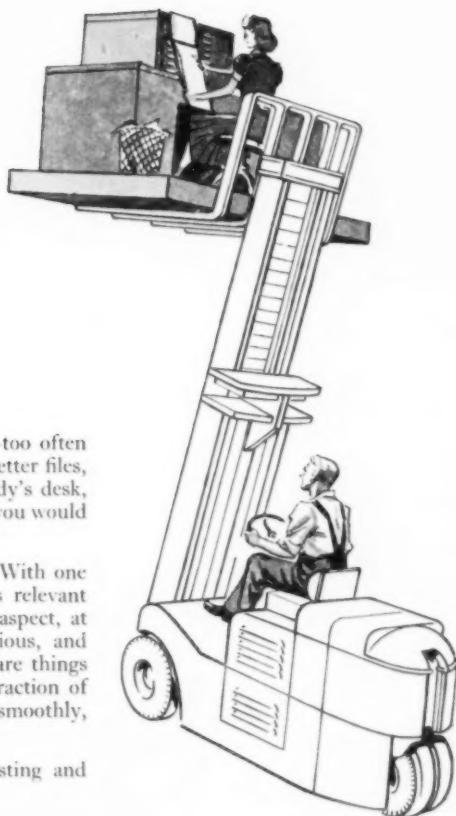
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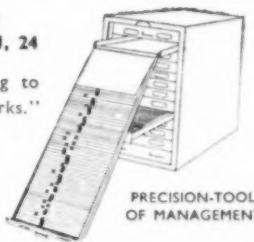
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bulk cash according to the cash summaries supplied to him by the listing department. Consistent and even output from the calculating and listing sections ensures that a regular flow of summaries and payrolls to the pay station is maintained.

Each clerk breaks down the money he receives into the exact amount for each individual payroll sheet, thus providing a check on the amount received from the cashier. He then proceeds to make up the packets for each payroll, and at the end of each sheet his money should balance out precisely. If an error has been made it is localized to one pay sheet and can be quickly corrected. Window type envelopes are used, notes are "fanned," and an independent visual check is made before packets are sealed. No query from an employee is entertained after a packet has been opened.

Wages Trolley

On Thursday each pay clerk pays out a shop or group of shops, using a specially designed trolley to convey the wages from one

point to another. This is done in conjunction with a foreman or chargehand for purposes of identification, and for each pay packet given out a signed wage card is received in return. Finally, the totals of signed cards and unclaimed packets are balanced back to the original total on the payroll, each pay clerk summarizing the week's transactions, and the wages cashier completing a final summary of all transactions.

Tax Records

After the pay cards have been dealt with by the pay station, they are sorted into clock order and filed into individual pay card packs. These packs constitute a visual weekly record and are accepted by the tax authorities as an adequate record of individual tax deductions. At this stage it might be mentioned that the methods used enable the company to return to the collector of taxes on the first day of the new fiscal year the "P.9's" for the previous year, balanced exactly with the total payments made by the company.

As soon as the make-up of wage

packets is completed, payrolls are returned to the listing section, whose next task is to deal with National Insurance. To avoid possible loss of stamps, a system similar to that operating in the pay station was formerly in use and proved quite satisfactory. Nevertheless, the possibility of loss of insurance stamps could never be entirely eliminated, and consequently the method of "schedule stamping" (whereby contributions are accounted for each period and no stamps are purchased) was welcomed by the company and has been adopted in all its divisions.

Speed and Accuracy

It should be made quite clear that the insistence on speed has not brought in its train either inaccuracy or above average clerical costs.

**Please turn to Page 66, for
New for Your Office, which
is devoted this month to
equipment exhibited at the
B.E.E. at Birmingham.**



NEWS!

plus

**VISIBLE
RECORDS
MULTIPLE
ENTRIES**

An EPIC EVENT in the HISTORY OF OFFICE ROUTINE

In recent years two beneficial office methods have been widely incorporated into administrative work.

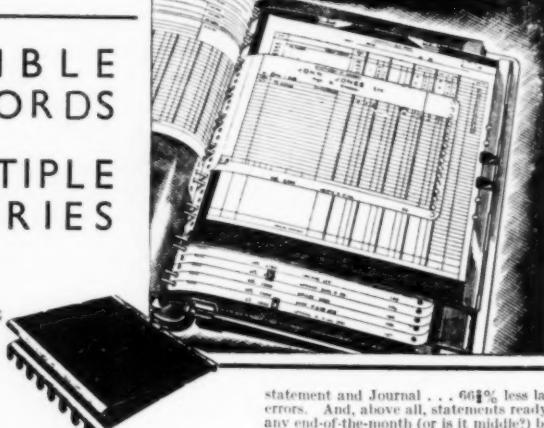
One is *visible recording*. Two is the *multi-copying* method of entering accounts, statements, wages and the like.

Hitherto you could have one or the other—never both. Either you chose the advantages of having facts and figures at your eye-tips, so to speak, or else you chose the advantages of multi-entering.

Now, for the first time, you can have both.

This simple sentence embodies a momentous fact in itself. It means you can have the very latest visible records—Shannoleaf—in streamlined, compact and portable binders AND that you can have these advantages PLUS double or triple entering.

Think for a moment what this means... in speed, in efficiency and—above all—in economies on clerical labour... Take your ledger accounts alone; you can, by making one entry on a ledger account, simultaneously post the



Special Note

In considering the new method described here please bear in mind that there are standard Shannoleaf records to cover Stocks, Purchases, Personnel, Sales, Case and Containers, Hire Purchase, Sales and Purchase Ledgers, Plant and Machinery. In addition there are hundreds of other printings to cover literally every possible purpose in both administrative and production fields.

statement and Journal... 66½% less labour, 66½% fewer checkings and errors. And, above all, statements ready to go out at any moment without any end-of-the-month (or is it middle?) bottlenecks.

Nor is this all; you have a visual warning of monies due, of overdue accounts, a day-by-day check on your figures and—virtually—the advantages of machine accounting without machines.

No responsible business executive can fail to be interested in this new labour-saving, money-saving, efficiency-increasing method...

So just jot "Shannoleaf Visicopier" on your letterheading and full details will be sent you by return.

Shannon Systems

FIRST IN FILING

The Shannon Ltd. 103, Shannon Corner New Malden Surrey

BUSINESS

A VALUABLE AUXILIARY CALCULATOR FOR THE LARGE OFFICE

No skilled operator needed.



THE IDEAL CALCULATOR FOR THE SMALL OFFICE

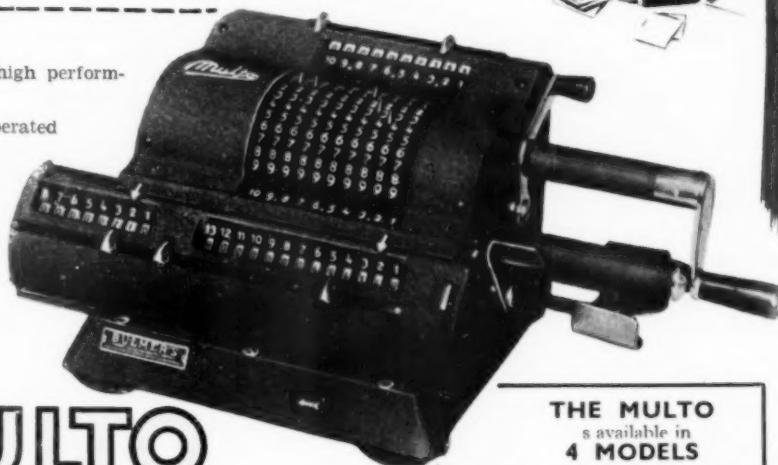
All members of the staff can use it.

THE PERFECT PERSONAL CALCULATOR FOR THE BUSINESS EXECUTIVE

No bigger than a desk 'phone.



- Low price—high performance
- One-hand operated
- Handy and portable
- Precision Built
- Attractive in Appearance



The **MULTO**
PORTABLE LIGHTWEIGHT
CALCULATOR



THE MULTO is available in 4 MODELS

- MODEL 3**—10 figure Setting-board,
Result Register 13 figures, Proof
Register 8 figures. £49
- MODEL 13**—Similar to Model 3
but with back transfer device. £59
- MODEL 103**—As Model 3, but
with full tens transmission. £59
- MODEL 113**—As Model 103—and
with back transfer. £69

BULMER'S (CALCULATORS) LTD., 7 & 8 POULTRY, LONDON, E.C.2. Telephone: Central 3611
Branch Address:—COUNTY CHAMBERS, 33, MARTINLAW ST., BIRMINGHAM; Telephone: CENtral 1536.
Sales and Service throughout Great Britain

NEW for your OFFICE

Versatile Duplicator

WITH a maximum printing area of 16½ins. by 13ins. the new Model 180 duplicator will take paper up to 17½ins. by 14½ins. At the other end of the scale it will automatically feed with equal facility, single post-cards measuring 5 by 3ins.

The Model 180 is the latest of a famous series of duplicators and it incorporates a number of protective devices providing easier, cleaner and better duplicating. The switch from very large to small work can be made with ease, and the well-known Express inking system by vacuum pump gives a perfectly even distribution of ink irrespective of the size of the copy.

The machine is powered by an electric motor and provides fingertip speed control for all types of work and it is extremely quiet in operation. Controls have been reduced to a minimum and handy knurled wheels control the position of work and the speed of the machine. Up to 60 copies a minute can be produced.

Finished in hammered grey, the machine is an excellent example of the high standard now being reached in the office industry in machine design.

—Enquiry Ref. No. O.3/6.

Semi-dry Photo-copier

THE Remflex is the name given to a new photo-copying machine which was shown at Birmingham for the first time. It incorporates a high intensity exposure apparatus, a new and

simple semi-dry processing method and storage for various sizes of paper. Immediate and inexpensive black-on-white copies can be produced in either facsimile or mirror form, according to the type of original. Any number of additional facsimile copies can be produced from a mirror copy whenever required.

One advantage of the equipment is that the paper is less sensitive to light than ordinary photographic document paper, and it can therefore be handled in normal lighting conditions. Any type of document can be reproduced and the self-levelling compensating load enables copies to be made from books up to three inches thick. The processing method is a "semi-dry" one and no large trays of chemicals or washing

operative arrangement of functional keys. The control plate—which can be described as the mechanical brain of the machine—renders every operation, except the actual writing of figures on the keyboard and the insertion and removal of forms, entirely automatic. Flexibility is assured as the plate can be changed in a matter of seconds and this enables the machine to handle an entirely different application.

Complete visibility of all entries—entries previously posted, as



The Class E accounting machine is an all-purpose model.

Descriptions of some of the latest office equipment exhibited at the recent

BUSINESS EFFICIENCY EXHIBITION

apparatus or dryer are required.

It can be used—and indeed it has been designed for use—in the office. No lengthy preparation is required and one person can operate it continuously or several people intermittently. In either case it is economical, as running costs are low and there is no wastage.

—Enquiry Ref. No. O.3/7.

For All Accounting Needs

EQUIPPED with two registers of nine-bank capacity, the Sundstrand Class E accounting machine is an all-purpose electrically-operated unit which is simple in design and operation. Each of the two registers embodies direct subtraction and credit balance features. The registers are automatically engaged to add or subtract either jointly or independently when desired.

The newly-designed keyboard incorporates flexible date keys and abbreviations, 12-key figuring keyboard and an improved touch

well as entries being printed—is assured by the high speed dual feed carriage. The opening and closing of the carriage is automatic and can be set to operate at any desired position in the line entry.

Other features include passed balance transfers with simultaneous trial balance if desired, and direct correction of errors while the forms are in the machine.

—Enquiry Ref. O.3/8.

Document Safes

FEATURED at the Business Efficiency Exhibition was a new range of document safes which are strongly constructed of toughened steel. The body consists of a single steel plate, bent at all 12 corners. The area between the outer and inner bodies of the safe, and the chamber behind the locking mechanism of the door, is fitted with an improved moisture-generating, non-conducting, fire-resisting composition.

The door is of tough steel plates, with an additional protection of hardened steel over vital parts, and is securely held in its seating by bright steel sliding bolts at the front, and a continuous fixed bar at the back. The bolt-work is controlled by a best-quality, six-



The Remflex photo-copier.

INSERT THE CARD - THE RECORD'S MADE!

That's how Employees record on the International

Superelectric Time Card Recorder

and they instantaneously check their time record with the direct read figures on the machine—an easy one handed operation.

Automatic operation by insertion of card—no levers to move.

In and out and day to day records automatically positioned.



For further information of this modern Attendance Time Recorder—now manufactured in this country—ask for free descriptive folder 509/8

IBM UNITED KINGDOM LTD.

formerly trading as

INTERNATIONAL TIME RECORDING CO., LTD.

8, BERKELEY SQUARE, PICCADILLY, LONDON, W.I. - - - Mayfair 2004

and at Birmingham, Manchester, Leeds and Glasgow.

HEAD OFFICES—INTERNATIONAL WORKS, BEAVOR LANE, HAMMERSMITH, LONDON, W.6

International Business Machines

PENSION SCHEMES

WITH PROFITS

Throughout its century of service, the Prudential has taken a leading part in providing insurance to meet the changing needs of the community.

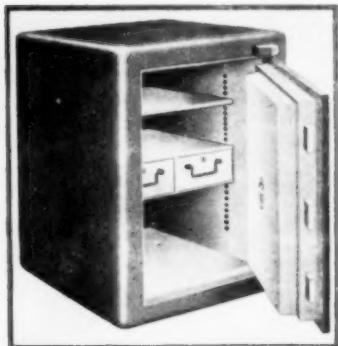
Another step forward is the extension of profit sharing to Group Pension Schemes.

For particulars apply to

THE PRUDENTIAL ASSURANCE CO. LTD.
HOLBORN BARS, LONDON, E.C.1

lever, unpickable key lock. A three-tumbler combination lock can be fitted in place of, or extra to, the key lock if required.

A special feature of this range of safes is the adjustable interior



One of a new range of document safes.

fittings, which have been designed to meet the increasing demand for alternative positions for shelf and drawer units. The fittings comprise one or two drawer fittings and steel shelves. Drawer units can be fitted in tiers, or individually, and shelves are supplied to

meet special requirements. Both the shelf and drawer fittings are adjustable at 1 in. pitch, from top to bottom.

The standard finish of the range is metallic grey outside and silver grey inside.

—Enquiry Ref. No. O.3/9.

Multi-drawer Register

SPED, convenience and security are the three important points in the design of the Model 6003 sales register. This model is intended for sales counters staffed with several assistants and it incorporates all the advantages of the written, detailed sales

register together with speed and security.

Every time a sales check is issued an unalterable copy is automatically filed in the register security department and no further checks can be issued until the cash drawer is closed. The register is always ready for use with a set of sales checks in position and carbons correctly interleaved and a pull on the lever issues written sales checks and opens the appropriate cash drawer. Selection of the separate cash drawers is by coloured push buttons and only one can be operated at a time. Each or all selectors can be locked when out of use.

A loading compartment holds a



Speed and security are special points of the model 6003 sales register.



THE *Everest* CALCULATOR (MODEL Z4)



- TEN KEY SETTING
- SILENT—SPEEDY
- SINGLE HAND OPERATION
- INTERNAL CARRIAGE
- 13 COLUMN CAPACITY



ASK FOR DEMONSTRATION

Write for illustrated leaflets to

T. S. (OFFICE EQUIPMENT) Ltd

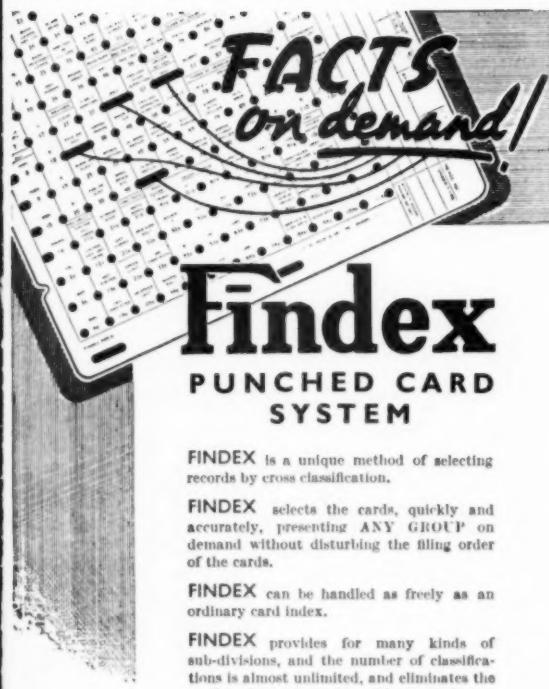
30 New Bridge Street, London, E.C.4.

Phone: CITY 1107-9

TYPEWRITERS
(Standard and Portable)
THE NEW 1952 MODEL

Everest

- KEY SET TABULATOR
- SILENT CARRIAGE MOVEMENT
- THREE STYLES OF TYPE—PICA, ELITE & MICRO
- CARRIAGE LENGTHS—12"-22"



Findex PUNCHED CARD SYSTEM

FINDEX is a unique method of selecting records by cross classification.

FINDEX selects the cards, quickly and accurately, presenting ANY GROUP on demand without disturbing the filing order of the cards.

FINDEX can be handled as freely as an ordinary card index.

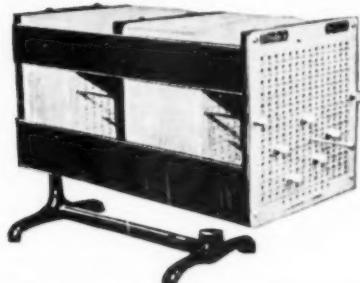
FINDEX provides for many kinds of sub-divisions, and the number of classifications is almost unlimited, and eliminates the need to inspect every card in the index—a monotonous and fatiguing job.

FINDEX is NOT a ready-made system—every installation is arranged specially to fit the needs of its users.

Wherever cross indexing is necessary, or wherever cards must be selected in groups, **FINDEX HAS NO EQUAL!**

If **FINDEX** was the most expensive method of keeping records ever devised it would still justify its cost and prove itself to be the most economical because of its unusual ability to produce facts on demand.

You are invited to investigate—without obligation. Our experience is at your service.



C. W. CAVE & Co. Ltd.
59, HOLBORN VIADUCT, E.C.1.
CENtral 3778-9

Represented in Leeds, Manchester, Sheffield, Brighton & Rochester

MARCH, 1952

SAVES TIME AND MONEY!



The
Emidicta
ELECTRONIC DICTATION SYSTEM

With the *Emidicta* Dictation Machine you can dictate immediately—you are no longer dependent upon the availability of a Secretary. And of course, as your Secretary need not spend hours taking down shorthand, you get correspondence back more promptly, and she gets more time to be an efficient Secretary. In fact the *Emidicta* makes office life easier and more productive all round!

* The **EMIDICTA** Dictation Machine is made by **E.M.I.** (*His Master's Voice*, *Marconi-phone*, *Columbia*, etc.), masters of the art of recording and sound reproduction.

E.M.I. SALES & SERVICE LTD

(Emidicta Division, Dept. 4)
363/367 OXFORD STREET, LONDON, W.1
Telephone: Mayfair 8597, Grosvenor 7127/8

EM.26

69

flat pack of 400 duplicate forms and reloading is simple and can be completed in less than a minute. Spare packs of sales checks and the carbon rolls can be stored in a locked compartment specially provided for the purpose.
—Enquiry Ref. No. O.3/10.

For Punched Cards

OF interest to punched card users at the B.E.E. was the card storage equipment featured on one stand. The display included two improved models of storage cabinets, one being five feet high with a capacity of 104,000 cards and the other of desk height with a capacity of 56,000. Both can be fitted with doors to lock.

Another piece of equipment shown was the Visibell storage and pulling file, and the manufacturers claim that this is the most advanced contribution to pulled card technique yet devised. It opens up new possibilities in the use of pre-punched cards.

Another innovation is a card support which is an improvement on the usual follower pressure plate. This device works by lateral expansion and requires no channel in the bottom or sides of



The new punched card pulling file.

the tray. It can be completely removed when the tray is full and can be used with any type of tray, whether in metal or wood.

—Enquiry Ref. No. O.3/11.

Desk for Conferences

THE Model 6650 reception desk is ideal for small conference work when four or five people are present. Available in figured oak it has front and rear knee space

25ins. by 15½ins. The top has a 14ins. overhang allowing space and leg room for two chairs. The overall size of the top is 60ins. by 33ins.

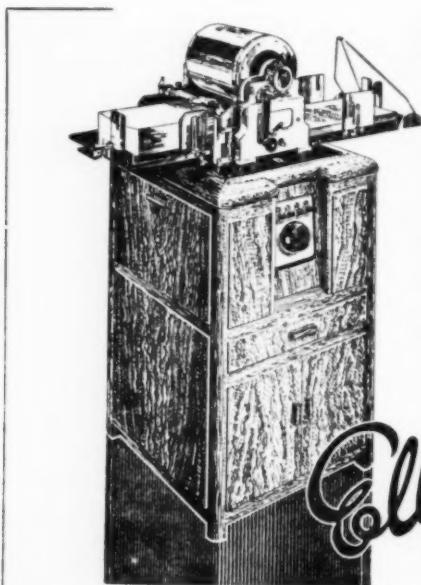
For individual convenience there is a height adjustment feature which enables the height to be altered from 29ins. to a maximum of 30ins. The pedestal drawers are locked from the top drawer and there is a visible filing insert in the deep drawer. The pull-out slide has a patent insert tray.

—Enquiry Ref. No. O.3/12.

Spirit Addresser

AN interesting new product which was featured at the B.E.E. was the *Renaddress* hand-operated spirit addressing machine. The masters used on the *Renaddress* are of paper and card and can either be prepared on a typewriter or hand written. They can be filed or stored for an indefinite period without deterioration. Each master will give 100 addresses.

The machine, while simple to operate, incorporates several very useful features. These include automatic feed and fluid control, skip and repeat mechanism, complete positive visibility of the address to be printed and a



Collams

DUPLICATOR COMPANY LIMITED

5 DEAN STREET, LONDON, W.1 • Telephone : GERard 4386

X ÷ + -

With the wonderful

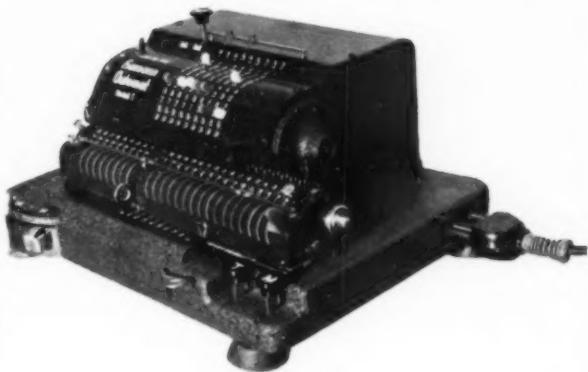
HAMANN AUTOMATIC CALCULATOR

Either the

HAMANN "AUTOMAT T" Full Automatic short cut operation, electrically driven. Just touch one key and the "Automat T" multiplies, divides, adds and subtracts with unfailing accuracy.

or the

HAMANN MANUS Hand operated with the operating handle rotating in a forward direction only, and incorporating *fully automatic division*.



Ask for leaflets or a demonstration from:—

OFFICE MACHINERY LTD. "OMAL HOUSE", 22, KINGLY STREET, LONDON W.I.
Phone: MAYfair 1028.

The Modern Clock for the Modern Office



Retail Prices including P.T. as follows:—

6" dial £1. 19. 4.
9" " £5. 12. 11.
12" " £6. 11. 2.

No clock could be more in keeping with the modern office than the Smiths 'Sectric' Delhi, with its clear, easily read dial and smart



*The
Delhi*

but dignified appearance. It is one of the most popular wall clocks in the Smiths 'Sectric' range. Available with 12", 9" and 6" dials.

SMITHS 'SECTRIC' CLOCKS



SMITHS ENGLISH CLOCKS LTD Sectric House, London N.W.3. The Clock & Watch Division of S. Smith & Sons (England) Ltd.



**The Renaddress
hand-operated ad-
dressing machine.**

**Below, the very port-
able Victor adding-
listing machine.**

capacity to handle all shapes and sizes of envelopes.

Compact and well constructed, the Renaddress is finished in green crackle and chrome. It measures 12ins. by 12ins. Several models are available and an electric version will be marketed shortly.

—Enquiry Ref. No. O.3/13.

Portable Adding Machine

ONLY a little bigger than a telephone, the Victor portable adding-listing machine has a performance equal to that of larger

machines. With a keyboard capacity of £99,999 19s. 11d. and a total capacity of £999,999 19s. 11d., the Victor, gives addition, direct subtraction, item repeat, totals and sub-totals.

All controls are within the space of one hand, and the keyboard is in two colours for easy identification. One interesting feature

of this machine is the four-line spacing it automatically allows after totals and sub-totals, enabling them to be quickly identified on the printed roll.

The machine is attractively designed and durable. The light alloy carrying case ensures complete portability and maximum protection when the machine is not in use. This portability feature makes the Victor a particularly attractive proposition for the executive who might require to use a machine on journeys or at home.

—Enquiry Ref. No. O.3/14.



A new low-priced speaker system

Right up to the minute in appearance and ease of operation. Simply touch a button and speak *instantly!* Each EDISWAN Loudspeakerphone is fully guaranteed. Please write for illustrated leaflet B.77

PRICE: Standard Master Unit
for 6 extensions : **£22.10.0**
Extension Units (each) **£ 4.5.0**



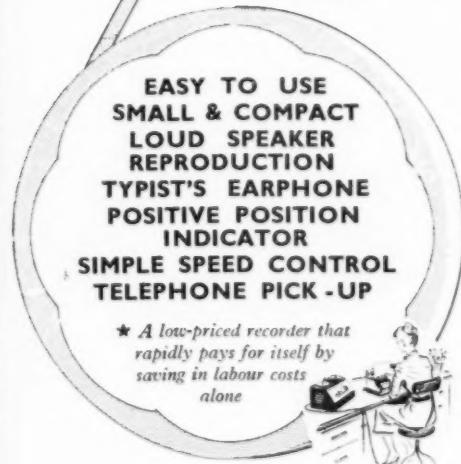
EDISWAN

Loudspeakerphone—No purchase tax—No rentals

THE EDISON SWAN ELECTRIC CO. LTD. 155 CHARING CROSS ROAD, LONDON, W.C.2

Member of the A.E.I. Group of Companies

Branches in all principal towns.



BRITISH UNIVERSAL E.M.E. LTD
6 VICTORIA STREET - LONDON, S.W.1

Tel.: ABBEY 5457

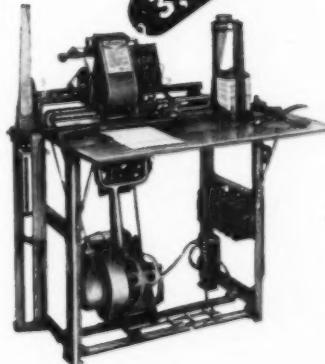
MARCH, 1952

PROGRESS



How efficient is your mailing department? With the ADDRESSALL machine you are able to automatically address for dispatch up to 3,000 envelopes per hour—with absolute accuracy

To those concerns who have the problem of regular mailings the ADDRESSALL machine will show a definite saving of time and money.



Why not send for our brochure which gives fuller details and information.

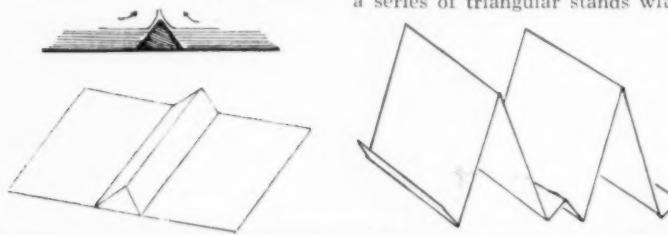
Addressall
MACHINE COMPANY
11-13 SOUTHAMPTON ROW, LONDON, W.C.I.
Telephone: HOLborn 3571-3572

Short Cuts to OFFICE EFFICIENCY

Quick Collating

COLLATING the pages of a lengthy duplicated document takes time. Here are two simple devices that can be made by any handyman that will effectively double the output of a girl by enabling her to pick up two sheets in place of one.

The horizontal model is the



faster, but takes up a fair amount of room, and can only be used when there are eight sheets or fewer to collate. The illustration is self-explanatory; the pack of page 1 is placed face upwards on the right, and the pack of page 2 face downwards on the left.

For lengthy reports, the vertical model is to be preferred, since it takes up less room. It consists of a series of triangular stands with

flanges to hold the packs of paper vertically; when not in use these nest into each other.

Cash Control

CAsh control in Gimbel's famous New York store meant that sales clerks from 12 selling points converged each morning and evening on three cash control stations to pick up their \$30 cash "float" and make deposits. The queues got so bad that a new system has now been introduced.

Twelve units have been placed, one on each floor, to handle all cash transactions. Each unit consists of a safe for the "float," and a receipt-giving depository for evening deposits.

The change fund unit is a deposit box safe, which opens to make 100 individually locked safe deposit components available. Each clerk is assigned one of these boxes and is given a cylindrical key, which cannot be duplicated. For audit purposes, a master key opens all boxes. The component contains a transparent plastic cash box capable of holding \$30. The money is visible through the transparent top, which is ruled to facilitate coin counting. If a clerk fails to insert the box into the safe, a visible red button signals that fact.

Papers of a transitory nature that must be at hand need not lie untidy on your desk or place of work; keep them within arm's reach indexed and organised in the

VETRO *Organiser*

Twinlock
SYSTEMS

PERCY JONES Twinlock Ltd., 37 Chancery Lane, W.C.2.

Tel : CHAncery 8971



"The great thing about this small machine is the sense of having all your routine printing under your own control."

Whilst the average office is normally provided with some means of duplicating, much of the equipment is restricted to the reproduction of simple typewritten matter on duplicating papers. Anything more ambitious such as photographically illustrated brochures or colour work is usually considered beyond the scope of office equipment. Yet the Rotaprint, a very simple machine, is so versatile that almost any print job in the office comes within its scope, whether it be simple typescript, photographs, drawings, or ruled forms.

The great thing about Rotaprint is the sense of having all your routine printing under your own control. All jobs are on easily filed, thin, flexible plates ready to run off copies at a moment's notice, whether the quantity be 50, 500, 5,000 or more. The convenience alone is outstanding.

With this small British-built Rotaprint it is possible to change over in a few minutes from the printing of a long typewritten report to an illustrated pamphlet or an even more elaborate job in colour, on all kinds of paper.

KAYE'S
Rotaprint

HONEYPOD LANE, LONDON, N.W.9.

The full name—KAYE'S Rotaprint Ltd., is important, for it is a guarantee that you are dealing with a genuine all-British organization of 25 years standing, having the technical qualifications and manufacturing resources necessary to provide consistent long term service.

VOUCHER

For the fullest information about Rotaprint, merely pin this voucher to your letterheading and post to Kaye's Rotaprint Ltd., Honeypot Lane, London, N.W.9.
B.5

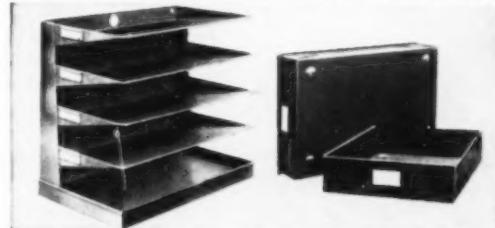
Please send without obligation, full particulars of the all-British Rotaprint with a free portfolio of specimen work to the address given on the attached business letterheading.



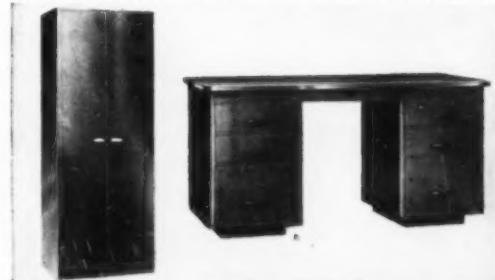
STEEL STATIONERY CABINETS AND CARD INDEX CABINETS.



STEEL BOOK RACKS AND STEEL WASTE PAPER TUBS.



STEEL LETTER RACKS AND LETTER TRAYS.



STEEL CUPBOARDS AND DOUBLE PEDESTAL STEEL DESKS.

All Harvey Steel Furniture and Equipment is of modern design, sound construction, and of the highest quality. Finished in Olive Green stoved enamel it is perpetually durable, fire-resisting, and proof against damp and vermin. Prices are competitive. Send for Catalogue No. BU 800.

Harvey

G.A. Harvey & Co. (London) Ltd.
Woolwich Rd. London S.E.7

The deposit unit simultaneously receives, receipts and deposits money turned in at the end of the day. When the sales clerk prepares her deposit, she wraps the cash and notes in a special currency wrapper, on which she

writes an itemized statement of cash receipts. The wrapped currency is then slipped into a slot on the top of a fireproof and burglar-proof safe. It remains upright in the slot until a lever is pressed; this cuts off the top of the wrapper, allowing the bottom half, containing the currency to fall into the body of the safe. At the same time the operation of the lever embosses the store name on the receipt, cutting the embossing in half.

Half the embossing remains attached to the currency in the safe, the other half is on the sales clerk's receipt, so that it is possible to check the authenticity of the receipt at a later date by matching the embossing of the severed edges. If a clerk tries to deposit only the receipt portion of the currency wrapper, the machine will not emboss it.

Fire Drill

ON a long-term basis, the only protection against fire in the office is the installation of fireproof equipment. If a fire breaks out in office hours, however, many papers will be unprotected because they are in use.

One firm has trained its staff in emergency tactics in case of fire. All files should be locked at the first sign of fire, since the collapse of a floor allows unlocked files to open and spill the contents. Waste-paper baskets can be used to collect papers from desk tops, and quickly remove them from the premises or into fire-resistant files. The sorting of papers on desk-tops (especially cheques, money or valuable documents) should be avoided, since a sorting rack or tray is easier to pick up quickly in an emergency.

The Institution of Production Engineers
NOTTINGHAM SECTION

Editor, Mr. G. A. T. MARSHALL, M.I.Mech.E.,
Clerical House, Tuxford Street, Nottingham.

Dear Sir

12 November 1958

I was particularly interested to read in your November issue of "Business", the article on work study in offices. About three years ago, I advocated a change in layout for commercial letters, primarily to save paper, but at the same time to reduce the cost of mailing. Enclosed is a copy of this layout which you will see is almost identical to the one recommended by the time-study experts.

This idea, however, did not meet with favour from business executives on the grounds that it was too difficult to learn. The writer has, therefore, modified the styling to conform more with accepted principles yet still take advantage of the saving in time and material.

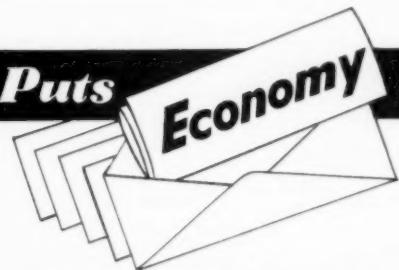
This letter embodies the new layout, with double line of the left hand margin stay and one tabulator stop. All lines commence at one or other of these two positions. Indentation is omitted, except in the context of the letter, and it will be noted that the date and terminal positions can be arrived at easily by crossing the two lines. The normal margin stays, the first will suffice but the style is not too unusual, and is a rational step forward in these days of rigid austerity.

Yours faithfully,
John Marshall
Secretary-General
NOTTINGHAM SECTION

The Editor
Business Publications Limited
180 Fleet Street
LONDON E.C.4

A letter received from a BUSINESS reader.

Puts Economy Into Correspondence



Into Correspondence

Economy is the National Call—it can start in the office—and it can best be effected by installing the DICTOREL Magnetic Dictating Machine.

DICTORAL DICTATION IS UNIQUE. No other machine uses simply a foolscap sheet of paper as the recording medium. Discs, wire, tape and belts are dispensed with. The design ensures simplicity in operation—there are no confusing knobs or switch controls. Every feature of the equipment effects savings in time and money. Constant re-use of the paper sheets (called Dictograms) • Easy for filing • Immediate reference back or forward to any desired point in the dictation. • Instantaneous play-back.

Chosen by hundreds of leading industrial and commercial concerns in Britain for its utter simplicity of operation, its outstanding economy and reliable performance.



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Write, call or phone for a demonstration

The Trevor-Johnstone Company Limited

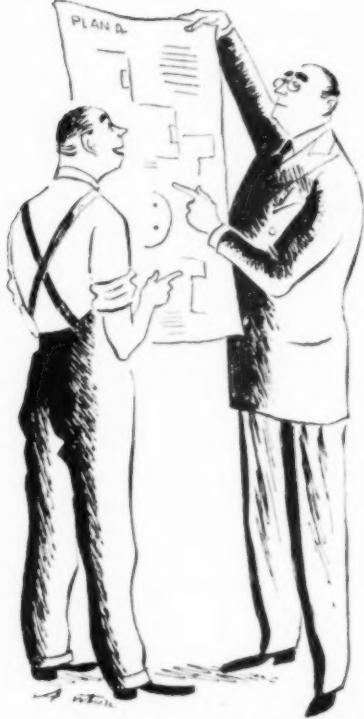
169-174 Sloane Street, Knightsbridge, London, S.W.1.

Sloane 6198-9



dictorel

The RELIABLE MAGNETIC DICTATING UNIT



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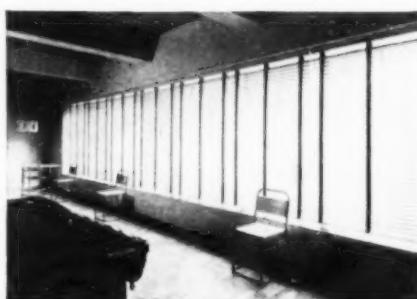
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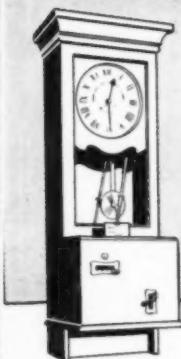
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How Productivity Was Increased by Minimizing Movement



By BRIAN CUMMINGS



In planning the manufacture of their polisher, Hoover, Ltd., paid special attention to the layout of equipment and made the maximum use of mechanical handling. Add to this their forward looking attitude to work-study, and the result is production roughly equivalent to half the pre-war figure for the whole factory in only 15 per cent. of the space—with an even higher potential output.

AFTER more than a year of steady sales in European and Commonwealth countries, the Hoover electric polisher has now been launched on the home market. Behind the appearance of the polisher lies a fascinating story of production planning, the outstanding features of which are the lay-out of the equipment and the attitude to work-study of the Hoover production engineering department. Using only 7,900 square feet, or 15 per cent. of the area of the Perivale factory, Hoover technicians have attained a production roughly equivalent to half the pre-war figure for the whole factory. Potential output

is even higher—between 80 and 90 per cent. of the pre-war figure.

Production of the polisher is concentrated in one section of the factory, the idea being to eliminate unnecessary movement of men and materials. Another purpose is to make the work more interesting to the operatives. To quote Sir Charles Colston, chairman and managing director of Hoover, Ltd., "They can see the results of their work; it helps to build up a team and is a spur to higher production."

The fact that so much production comes from so small a space is due to improved materials handling, extensive conveyorization, condensed operating positions, and reduction to a minimum of buffer stocks between operations—all different aspects of work-study and materials handling. Special equipment has played its part, but it is impossible in this article to describe all the engineering operations in the line.

Hoover's ideas on the way to approach problems of material handling may be stated as follows:

(1) Eliminate handling, by mechanizing processes. Where mechanization is impossible, combine related operations. In the case of assembly work, combine operations so that each operator performs an equal amount of work in a basic time. This time must be related to target output.

(2) Reduce to a minimum the distance material and work in progress must travel before transformation into the finished product.

This requires flow-line production and sub-assemblies that feed into the main line at appropriate points.

(3) Apply the principles of motion economy to work handling on each operation, in conjunction with materials handling between operations.

(4) Investigate palletization and its economies.

(5) Avoid workers having to bend to the floor to obtain work by keeping materials on the working level. Achieve this by using roller conveyors, special hoppers and air-operated hoists.

(6) Investigate the economies of storage and delivery conveyors.

Machine Grouping

A few specific examples will show how these ideas are put into practice. Principle Number 1, for instance, is applied by grouping several small machines with one large machine, the result being a cycle of operations which can be undertaken in a known time by one operator. For instance, a worker begins a series of operations by borizing bearing diameter holes in the half-castings which enclose the motor. This is a relatively prolonged operation, and so the time cycle of the borizing machine is used by the worker for tapping holes in the next components required for the borizing machine. Remaining time is used for gauging components, for the operator is responsible for the quality of his own work.



The number of operator positions in the final assembly line was calculated by a method which is doubtless familiar to most time and motion study men—total time estimated for the job was multiplied by target output and divided by the number of hours to be worked by each operator. This gave the required figure—in the case of the polisher, only 22 positions for assembly of the machine from two half-castings to the completed job.

Cutting Out Movement

Principle Number 2—the one requiring reduction of distances travelled by material and work in progress—virtually conditioned the whole lay-out of the production line. For the first operation (milling the mating surfaces of the two half-castings) was placed close to the lift bringing castings from the floor below, and everything else was made to flow from that point.

Buffer stocks between machines are kept to a minimum by grouping machines and using chutes to feed work from one machine to another. Thus when handle bails have been scurfed and polished, they are passed down a chute to a

Far left, a general view of the final assembly line.

Above, one man carries out five operations.

Top right, hoods go by conveyor to the production lines.

Right, this truck is light enough to go in a lift.



further group of machines for drilling, reaming and tapping, all of which is done by one worker, who controls three machines and a tapping unit. All are grouped closely together, with the tapping unit placed above one of the machines.

The arrangements for armature and wound field iron assembly show how sub-assemblies can be fed into main assemblies at points of advantage. The assembly of both these components finishes at a point only eight feet from the beginning of the main assembly, a gangway taking up most of the intervening space. Storage space is saved by the fact that both armatures and field irons finish in what is virtually the same store.

Economy in work handling on each operation is achieved by time and motion study and the careful arrangement of bench-top lay-outs. These are traditional methods, though probably Hoover's technique for putting them into practise is more thorough than some. For instance, they use scale drawings for planning their bench-top lay-outs, as well as models for the

arrangement of conveyor lines and the siting of main items of equipment.

Mechanical handling equipment includes a Cleco electric fork pallet truck, which brings palletized castings up in the lift. Incidentally, this truck can turn out of a narrow right-angled bend and into a main gangway, which is no small advantage where space is limited.

The pallets (known as Omicrates) are made of mesh for lightness, and have one side that drops down for easy access to the contents. They can also be made to collapse completely, and Hoover send them in this condition to the foundry supplying some of the castings used in the polisher. The foundry erect the pallets and use them as carriers for sending the castings to Perivale.

Stores on the Move

Mechanized handling was needed in order to get the job done in the space available, and conveyors are used for temporary storage, as well as movement from one point to another. One type of

HIGH
OUTPUT
OF THE
HOOVER
POLISHER
WAS
OBTAINED BY:

- ★ Maximum use of materials handling.
- ★ Extensive conveyorization.
- ★ Multiple operating positions.
- ★ Reduction of buffer stocks.
- ★ Cutting down operator's movements.

conveyor used is capable of dropping vertically and will go round a sprocket only 13ins. in diameter. Its structural depth is very small—an important consideration where the headroom is only 11ft. 6ins. It is also useful where several conveyors have to be worked close together, as happens at one point in the assembly line.

Special Plant

Reference has already been made to the way in which machining operations are combined and made to flow in one direction, and some indication has been given of the way in which this can be done with standard equipment, plus one or two small machines of special design or domestic manufacture. Although much can be done with standard equipment and careful planning, there are certain jobs which require elaborate equipment to solve the problem of maintaining flow without losing quality. An outstanding example in the polisher line is the plant used for the impregnation of armatures. This introduces the principle of conveyorization into the job of impregnating—a development which

aids the control of quality, as well as maintaining a steady flow of work.

Known as the Zanderoll process, the basic principle is that the article to be impregnated is slowly rotated while being immersed in the varnish and during the subsequent baking. The latter takes place at a temperature sufficiently high to drive off the solvent content at a very early stage. The four advantages over the conventional pre-heat, dip, drain and bake method, and the vacuum tank method, whether conveyorized or not, are:

(1) Cycle time for the complete impregnation process is reduced very considerably. For example, a cycle time of 10½ hours by the dip and bake process can be reduced to two hours by the new process.

(2) Elimination of the operation of removing varnish from the armature shaft.

(3) Amount of varnish used reduced, since there is no loss due to drainage and evaporation.

(4) Short cycle time enables the process to fit more readily into flow-line production.

(5) Floor space required for a

given output is less than that required for other types of equipment.

(6) Quality of the finished armature or stator is greatly improved; varnish is evenly distributed throughout the article.

An example of Hoover's technical skill in designing their own equipment is the instrument used for checking the armature. This uses the principle of impedance comparison. The impedance of the coils between adjacent bars of the computator of a good armature lies between known values for each rating of armature, so indicator circuits can be set to show when the impedance of any one armature falls outside these known values.

Quality with Speed

The equipment designed by Hoover's to do this job combines tests which previously necessitated the use of three sets of equipment. Thus the armature tester may be said to epitomize the whole production line, for it ensures high quality in the product, whilst reducing component handling and the time taken on the job.

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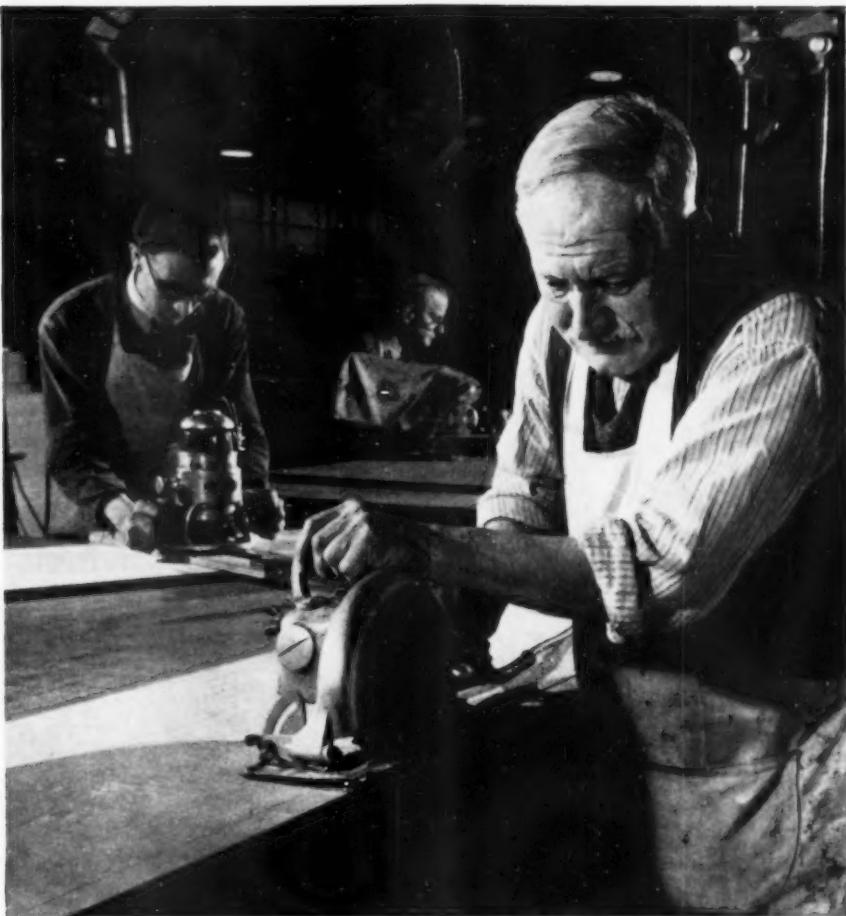
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—Enquiry Ref. No. F.3/1.

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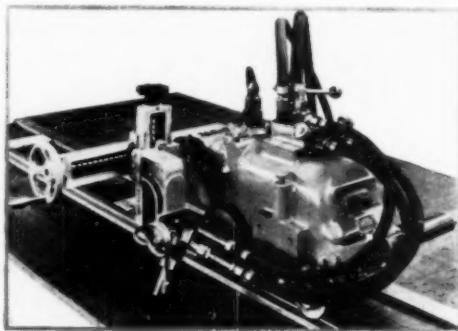
Flame Cutter

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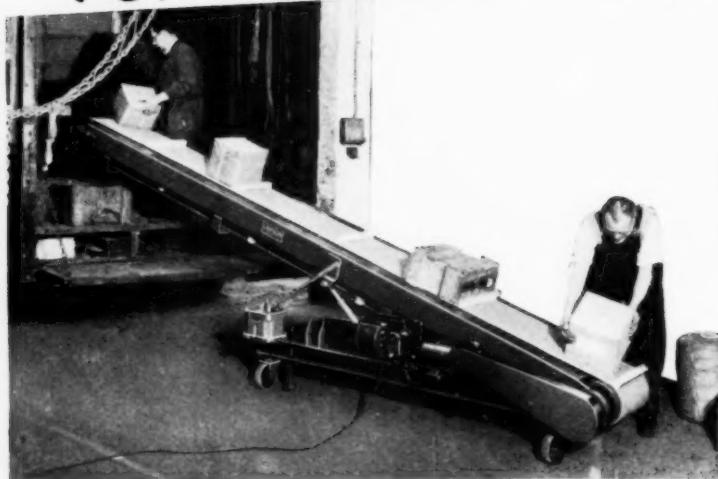
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Continued on page 90



Tracks are used with the Circline cutting machine for normal straight cuts

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A "radius" bar is fitted when circles larger than 20ins. in diameter are being cut; smaller circles are cut by means of an auxiliary centre clamped in a channel under the body. Crabbing rollers when fitted enable the machine to follow a template laid down on the work. Other attachments can be provided for oval cutting and for converting the machine to a flame planer.

The split-type burners have swivelling heads for bevel work and they are designed to burn several gases including acetylene, coal gas and propane. Starting, stopping and reversing switches are provided for the motor and all the controls are protected to prevent accidental operation.

—Enquiry Ref. No. F.3/4.

INSTRUMENTS

Versatile Projector

THE design of a new contour projector allows the accurate visual inspection of very small or awkwardly shaped objects to be carried out by relatively unskilled labour. Tolerances as small as 0.0002ins. can be checked against gauges and graticules incorporated in the screen. These screens can be supplied fitted with radii, grid forms, screw threads and other rulings, or they can be left blank



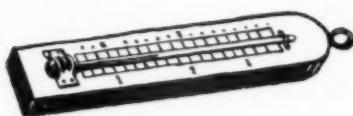
A demonstration of the contour projector in use.

so that a special outline can be scribed on.

One of the special features of the projector is the eight-inch clearance between the object and the lens. This increases the ease with which workpieces can be

BUSINESS

The and the



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MARCH, 1952



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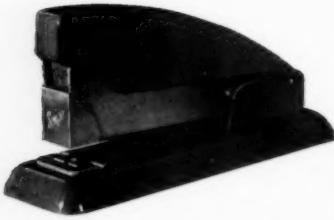
Simple to operate and easy to maintain, it has a carrying capacity of 1 ton and a speed of 4-6 m.p.h.

Illustrated (centre) is the "Leader" 2-3 Ton Elevating Platform Truck, a simple self-propelled truck which will solve many problems of moving heavy goods from point to point in your factory or works.

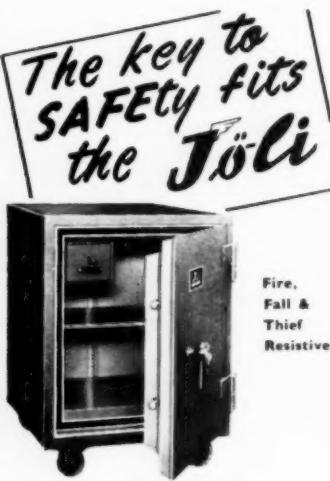
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mounted and enables larger objects to be inspected, besides eliminating the danger of damaging the lens with the workpieces.

The direct surface lighting used, permits the inspection of blind holes and counterbores, and episcopic inspection at very high magnifications even in normal shop lighting. The projector can be used with either a horizontal or vertical light beam; to make this possible a small mirror is mounted in front of the lens.

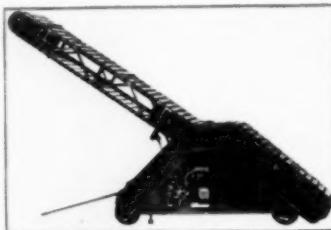
A switch is used to select any one of six magnifications between 10X and 100X. This allows multi-magnification inspection to be carried out without removing the workpiece or changing lenses.

—Enquiry Ref. No. F.3/5.

MECHANICAL HANDLING

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NEWEST addition to the Fourways range of portable conveyors is the Junior Model, which has a maximum delivery height of 10ft. and a speed of 50ft. per minute. The conveyor is mounted on four pneumatic-tyred wheels and can be worked and moved by one man. The boom is operated by hydraulic jacks controlled by a hand pump unit. Maximum load at any one time is six cwt., though individual load units must not exceed two cwt.



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—Enquiry Ref. No. F.3/6.

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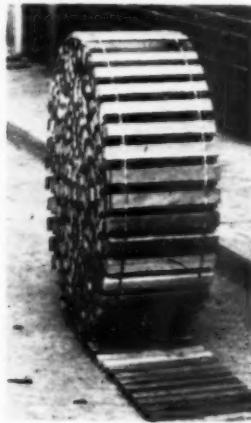
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BUSINESS

GENERAL EQUIPMENT

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across uneven, muddy ground. The latest style of duckboarding eliminates this; it is portable and convenient, for it can be rolled up when not in use.

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—Enquiry Ref. No. F.3/7.

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—Enquiry Ref. No. F.3/8.



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LABOUR SHORTAGE

Continued from page 45

ber of small factories up and down the country employing disabled labour exclusively. One, in North Wales, turns out office furniture; another, in Surrey, produces toys. While the impetus behind such firms is philanthropic, they are run on orthodox business lines, without subsidy; their products compete in the open market, and their workers are paid standard union rates for their jobs.

In particular, there are many jobs that blind workers can undertake as well as, and even better than, sighted workers. A surprisingly long list of these was published in an article on blind workers in BUSINESS in March, 1951.

There are many workers suffering from chronic diseases that prevent them from doing normal work. Certain jobs are, however, suitable for them. A number of factories on the Great West Road, near London, for instance, are co-operating with a local hospital by providing work for paraplegics, i.e., people confined to invalid chairs by diseases involving paralysis.

Most of the firms are engineering concerns, and much of the work is light assembly work, but a certain amount of processing, such as drilling, etc., is undertaken by these disabled workers. In South Wales there are many miners suffering from lung and eye diseases who are capable of doing a light job satisfactorily. The Austin Company recently started a factory in South Wales manned exclusively by such workers to produce a toy motor car on a commercial scale.

Where temporary workers are required, a growing number of firms is using university and technical college students during the vacation periods; it is a fortunate coincidence that the seasonal peaks in many industries—summer and Christmas—coincide with such vacations. The students can be recruited through a special service run by the National Union of Students. They must, of course, be paid the union rate for the job they undertake, but, provided this is done, no opposition to their employment has been encountered from the unions.

BUSINESS

HE SOLD THE BALL-POINT PEN TO THE WORLD

continued from page 53

who have good ideas and bring them to my notice should be recompensed for it. The whole of the office staff of Biro Pens, for instance, participate as to 10 per cent. in the profits of the company in proportion to the salaries they are paid. Everyone who has been with us for a year is eligible. This year those shared profits, which are paid out annually just before Christmas, amounted to no less than four months' additional salary to the office staff.

"I am a great believer in such profit-sharing," Mr. Coit added. "Everybody, every firm, ought to do something on the same lines. In my opinion, not nearly enough firms do so. I am, indeed, absolutely convinced that the people who work in industry, the people who are doing the actual work, should share in the profits that the industry produces."

An incident which took place during the course of our conversation, slight though it might be considered, nevertheless suggested that Mr. Coit's expressed attitude to his executives had validity. We were discussing the success of a business venture which in a matter of little more than five years had made throughout the world the words "Biro" and "ball-point pen" synonymous.

"It has, indeed been a successful venture," commented Mr. Coit, "but before I tell you just how successful it has been, I would like to check with the general manager that there is no reason why our trading figures should not be released." And before telling me that Biro pens to the number of seven million and refills to the number of nearly 19 million had been sold in the previous year, Mr. Coit rang up the general manager to confirm that the information could be provided.

No one would accuse Mr. Coit of being unable to act decisively on his own initiative; it was not for that reason that he first consulted with a subordinate, but rather that he already marked out the sphere of his own, and others', responsibility, and, logically, did not overstep the boundaries which he himself had laid down.



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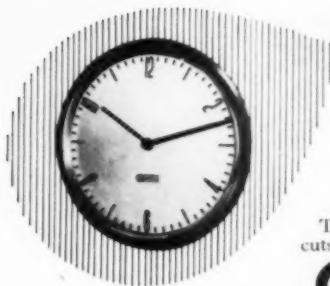
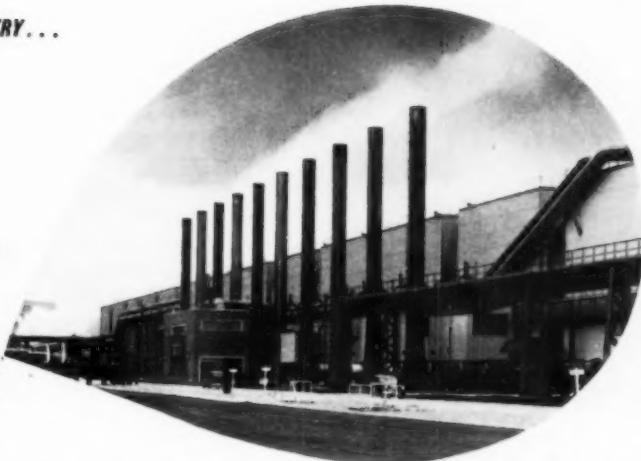
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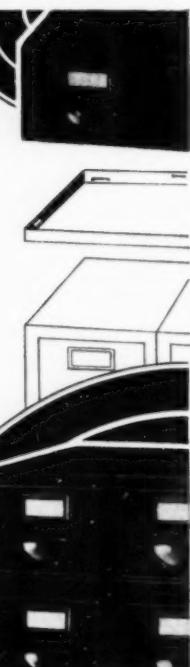
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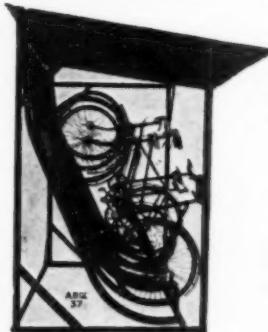
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Using a Stereometer at the Ford Motor Company.

Eyes in Industry—2.

In the first article dealing with eyes in industry which appeared in last month's issue the question of management policy was covered. This feature is devoted to the execution of that policy and describes how to operate a visual welfare scheme and get the best results.

How to Operate a Visual Welfare Scheme

By SAM BLACK, F.S.M.C., F.A.A.O., Editor, "Vision"

THREE are three main ways in which a visual welfare scheme operates:

1. Every new employee has his or her eyes examined thoroughly before starting work, to decide the best type of work to give them.

This means that first of all the different factory operations have to be classified by a visual expert according to the severity of the visual task involved.

2. Efforts are made to maintain the visual efficiency of all employees who require spectacles by regular re-examinations and by ensuring that existing spectacles are kept in good repair and adjusted.

3. Periodical inspections are made to see whether working conditions can be improved to facilitate easy seeing.

For example, the amount and type of lighting require watching; a well-designed and costly lighting installation may become unsuit-

able if the workshop layout is altered.

The success of a visual welfare scheme depends on co-operation between management, welfare staff, factory optical consultant and the workers themselves. The goodwill of employees is very important as it is advisable to make these schemes voluntary—except for pre-employment examinations—and workers should be educated to use the facilities rather than ordered to do so.

Screening Methods

In a very large concern the question of examining the eyes of every new entrant is a formidable task and the desire to prevent the magnitude of the task interfering with the benefits from the procedure has led to the development of "screening" instruments. These screening methods are not, and

can never be, a substitute for a complete eye examination. But by using certain special instruments it is possible within the space of five minutes to test the individual's visual ability, and to obtain sufficient information to reveal: (1) any defect of vision serious enough to interfere with normal work; (2) whether the person tested is likely to experience difficulty with concentrated close work; and (3) those cases where a full eye examination is required.

Screening devices are widely used in the U.S.A. and many large firms in this country have used the *Stereometer* (or *Stereosette* as it is often called) for years and report very favourably on it. These include Ford's, I.C.I., Crittall's, Murphy Radio, Dunlop Rubber Company, Bondor, Ltd., and Kolster Brandes.

The *Stereometer* is a stereoscope of sturdy, simple construction. The person being tested looks

through the stereoscope, is shown a number of pictures and has to answer certain questions about each. The answers are recorded on a special record pad on which only ticks or crosses are required. The record card is divided vertically by a red line separating "passes" from "failures"; the latter can be seen at a glance, and indicate the necessity or otherwise for a full eye examination.

The test can be given by the factory nurse, or other person who has been taught the principles involved, provided the results are interpreted by an optician or eye specialist. The test, while it reveals useful information about the worker's eyes, also provides, incidentally, helpful evidence about the intelligence of the person examined.

Some large concerns employ full-time optical consultants, but the more usual method is to engage the services of a part-time consultant.

An example of how a scheme of this kind works in practice is provided by Kelvin and Hughes, Ltd., of Ilford, Essex, radar specialists and makers of nautical

and aeronautical instruments. At their Husun Works at Ilford a visual welfare scheme has been in continuous operation for over ten years. Mrs. Erica Plummer, S.R.N., S.C.M., who is in charge of welfare, was at first hostile to the innovation. But her prejudice weakened when many workers who had been constant attenders at the works surgery asking for aspirins to cure their headaches or weariness had their trouble cured quickly by the provision of suitable spectacles. Now she regards the scheme as a vital part of the comprehensive health service provided for the factory's employees.

Simple Procedure

The method of operation at the Husun Works is simplicity itself. An employee who is experiencing eye trouble tells the nurse that he wants to see the optician; or the case may be referred by the factory doctor, or by the Home Office doctor following his statutory examination of the under-sixteens. An appointment is fixed for the next time the optician visits the factory—normally once a fort-

night. At the appointed time the employee is telephoned for and comes across to the works surgery, where the examination is carried out immediately. No deduction of pay is made for the short time lost.

Workers are sometimes suspicious when a new scheme of this kind is introduced. What does the management hope to get out of it? When they realize, however, that the main object is as much to improve their health and happiness as to promote improved quantity and quality of output, these suspicions quickly vanish. Although certain parts of the scheme—the pre-employment examinations and the periodical inspections of working conditions—are entirely the responsibility of the firm, it is important to bear in mind that most employees who wear spectacles will have their own opticians and will doubtless wish to continue to consult them. This personal freedom must be safeguarded with care, and this freedom of choice is a fundamental principle of the National Health Service.

The distinction between those parts of the eyesight scheme that

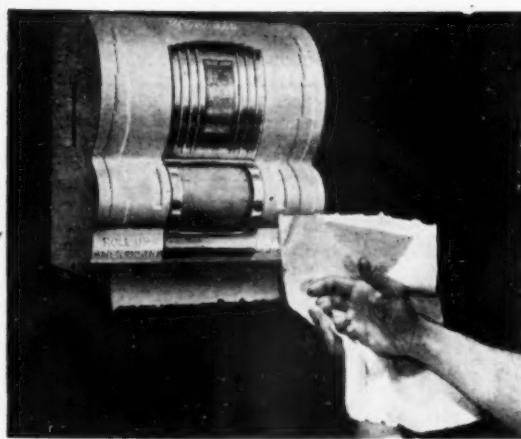
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are entirely the responsibility of management and the part where the workers' personal freedom of choice comes into account is financially significant. Any person may obtain an eye examination and spectacles through the N.H.S. Supplementary Ophthalmic Service. The optician working in a factory can apply to the local N.H.S. Executive Council for the consulting room to be registered for the provision of eye examinations and spectacles through the Health Service. This application for registration is unlikely to be refused provided the accommodation and equipment are adequate and the optician undertakes to see that the freedom of choice of employees is safeguarded.

What it Costs

The majority of eye examinations will thus be carried out without cost to the factory other than the expense of providing suitable accommodation.

The National Health Service will not pay, however, for special types of examinations carried out for the benefit of the factory. This means that management must pay

the optical consultant for the routine examination of new employees or for advice given on lighting, machine layout, or similar matters.

Similarly, the factory has to meet the cost of the provision of special "work-glasses" where these are necessitated by the particular type of work and are not required in the usual way by the worker for reading and other ordinary close work tasks. This is analogous, of course, to the factory's obligation to provide protective goggles for employees working where there is danger to sight without protection.

A factory's optical consultant can render valuable advice on various aspects of vision, lighting, etc., and there are a number of circumstances in which a knowledge of visual factors can be employed to advantage. One striking example is in the utilization of the principle that increased illumination tends to reduce the apparent speed of moving objects. This is because although seeing is almost instantaneous it does take time to see, and this time-lag is reduced when the amount of illumination is increased.

Take the example of a girl working on a machine filling bottles with pills. She has to watch the filling chute continuously while this is moving fairly rapidly backwards and forwards. If the illumination is increased very considerably the speed of the moving chute appears to be reduced.

Modern lighting installations are carefully designed, but the effect can be marred very easily. For comfortable seeing conditions there must not be too marked a contrast between the illumination on the work and that of the surrounding room. To this end, it is usual in large offices or workshops to have local lighting supplemented by a certain amount of general illumination. Often in practice one finds that one or more workers are away from their desks or machines and have turned off their lights. This saves a little current, but the resultant dark spots in the room spoil the carefully designed attempt to provide the most comfortable seeing conditions. These are two examples of the type of difficulty that can be cured so easily on the advice of an optical consultant.



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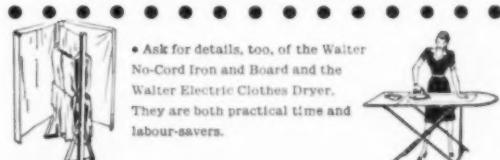
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Make Tea Your Business

By DAVID EARLY

Bulk tea-making is an art and must be treated as such in the canteen. But from the management's point of view it is a business and merits attention if the results are to be satisfactory and economic. No two industrial canteens have the same conditions, but one point is common to all: tea should pay its way.

In one year caterers in this country serve ten thousand million cups of tea—£120,000,000 worth of business. No safe estimate exists of the value of tea consumed in industrial canteens, but obviously the figure must be enormous. The important thing is to realize the possibilities for waste existing in that simple ceremony which is so characteristic of the British industrial scene—the morning and afternoon tea break.

Because tea is such a commonplace item in daily life, many adopt the view that "anyone can make tea." In fact, the reverse is true. Making a pot of tea for four may be comparatively simple, but bulk tea-making must be treated as an art—and, from management's point of view, as a business—if the results are to be satisfactory and economic.

No two industrial canteens have the same conditions, but one thing is certain: tea should, even when served in reasonably small quantities, pay its way. According to one authority, the sale of approximately 200 cups of tea daily at 1½d. per 8oz. cup should cover the cost of commodities used, plus a wage bill of £4 per week on a five-day operation. But, of course, it depends how you do it.

Every industrial tea scheme is closely involved in actual factory routine. For this reason a preliminary survey is necessary to

obtain basic information, including details of local conditions, works' routine and regulations, numbers of personnel and their relative disposition, because the success of any scheme depends on co-operation between management and workers.

Two Types of Service

Generally speaking, the survey will largely determine the nature of the tea scheme and whether tea shall go to the worker, or the worker to the tea; for there are two main types of service:

- (a) fixed point—where the worker comes for his tea; or
- (b) mobile—where tea is despatched to the worker at his bench or machine.

Certain circumstances may require a combination of both (a) and (b). For example, it is quite possible to arrange a mobile service in one part of the works while the other half takes its tea from a static point. Furthermore, the tea may be made at a static point or delivered in bulk from a central station.

Successful tea-making depends to a large extent on having an efficient water boiler. It is obviously essential to provide an adequate supply of boiling water at the right time, and the correct capacity must be calculated to

meet peak demand, allowing a margin for heating multipots and teapots.

The type of boiler or tea-making apparatus chosen depends on whether the tea is being made in bulk or batches, and an appropriate water supply will be needed to provide a bulk quantity at one time, or a constant supply of a small quantity over a period. The boiler should be so installed that the draw-off tap discharges direct into the tea-making receptacle, or may be:

(a) mounted on the counter for teapots;

(b) arranged with a low-level bench below it for loose multipots;

(c) fixed at a height, on a stand or cantilever bracket to enable trolleys with multipots to pass underneath.

In larger trolley stations it is an advantage to arrange the boiler in a central position suspended from the ceiling by means of a cradle type bracket, giving a clear space beneath for the passage of trolleys from all sides.

From all of this it becomes obvious that there is more in making tea than meets the eye. The *Catering Quarterly*, to whom we are indebted for some of the information quoted above, once devoted 16 pages to the subject. And now the Tea Bureau, which has been running training courses



since 1947, has launched a new one-day course to meet the specialized needs of catering staffs in industry.

Experience has proved that a one-day course commends itself to managements and that the essentials of the subject can be covered in that time. Lectures, films and practical demonstrations form the programme and illustrate the essentials of good bulk tea-making and efficient tea service. The subjects include tea-making itself, the care and use of equipment, hygiene and control systems. In the afternoon trainees visit the Lion Works, Woking, where they observe under normal working conditions the complete operation of an efficient factory tea scheme.

It is, of course, quite obvious that those who are responsible for the top-level planning of a tea service (and the subject does call for the attention of executives) will need something more than a one-day course. Fortunately, the Tea Bureau does not limit its training facilities to the course described. Other training programmes can be arranged to meet special needs and circumstances.

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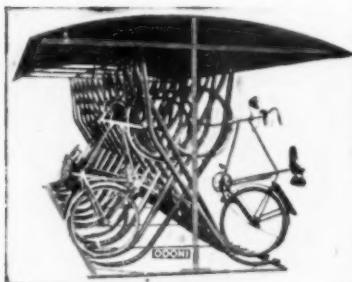
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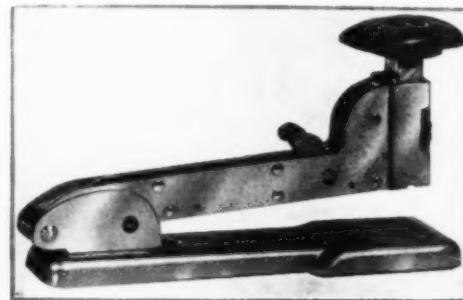
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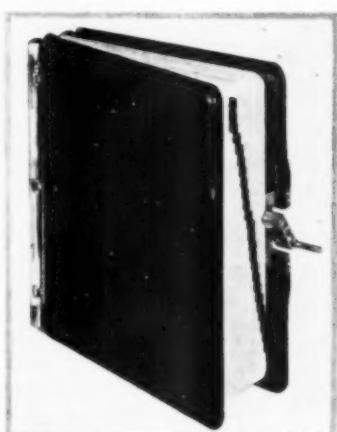
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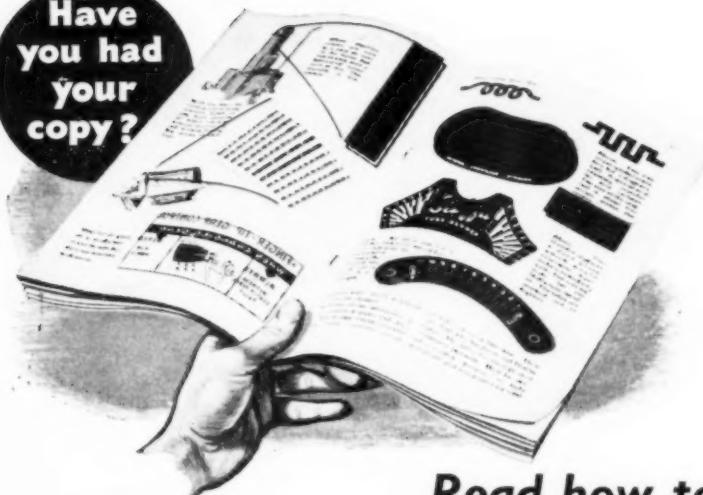


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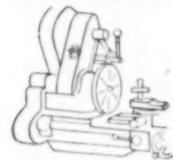
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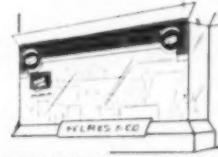
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